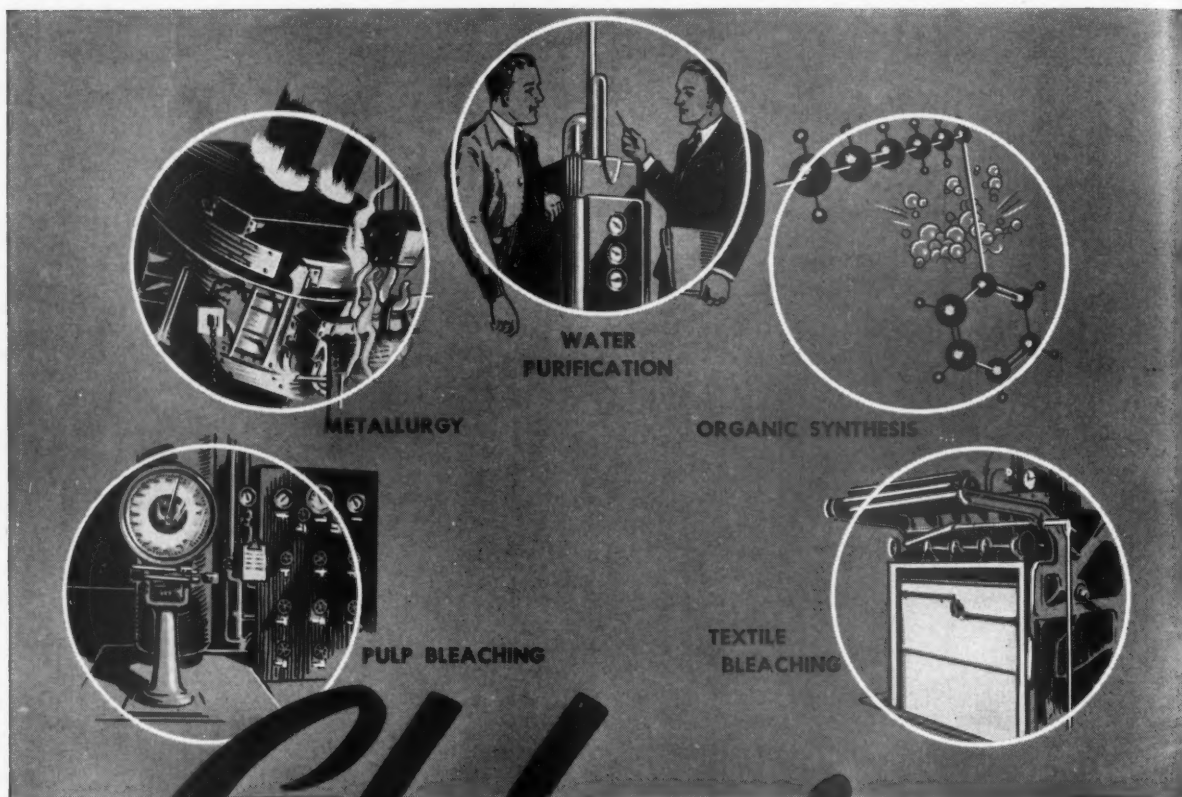




"No ifs or buts about it . . . the pulp and paper industry is essential . . . on an equal plane with basic war industries . . . don't sell it short."—COLONEL WALTER J. DeLONG, WASHINGTON STATE DIRECTOR OF SELECTIVE SERVICE. See Page 5.

PACIFIC *Pulp & Paper* INDUSTRY



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PENNSYLVANIA SALT
MANUFACTURING CO. OF WASHINGTON
Chemicals
TACOMA, WASHINGTON





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State Draft Director Declares Pulp and Paper Industry Essential

by COL. WALTER J. DELONG*

Washington State Director of Selective Service

This revealing message is addressed directly to every man in the industry in Washington State and was written by Colonel DeLong at the special request of this magazine in order to clear up a great many confusing questions. The points that he makes are of interest to men in the industry everywhere. The Colonel has held back no punches. The story here is complete.

YOUR state Selective Service System views the pulp and paper industry of Washington as essential to the war effort. There are no ifs or buts about that statement, and there is nothing that would please me more than to have that fact clearly understood by every one of the thousands of men who are engaged in that vital industry.

No matter what confusing reports you may read or hear, you are engaged in an industry which is one of many, many civilian activities supporting the war effort.

Inquiries from Selective Service registrants presently engaged in the pulp and paper mills indicate that it is not generally understood that your industry is one of those essential civilian activities which is on an equal plane with basic war industries. It is at once apparent that people must be housed and clothed and fed in war time as in peace. In other words, the term "war job" is not limited to a job in an aircraft industry, a shipbuilding activity, or an ammunition plant. The same consideration with respect to occupational classification and dependency status is given by the Selective Service System to registrants engaged in such essential civilian activities as pulp and paper, food processing, mining, transportation, heat, light and power services; agriculture, textiles, communications, maritime service, logging and lumbering, metal smelting, milling and refining; salmon fishing and canning, petroleum production, and many others too numerous to mention here as to those registrants engaged in basic war industries.

*The author of this article, written exclusively for THE PACIFIC PULP AND PAPER INDUSTRY, is Adjutant General of the Washington National Guard, in which he holds the rank of Brigadier General. He holds the rank of Colonel of Infantry in the Army of the United States. He is a veteran of World War I. His present headquarters: Camp Murray, Fort Lewis, Wash.

Every registrant who is in doubt as to his status in his present employment should consult with the local employment office of the United States Employment Service. Surely you would not want to hamper the war effort. Therefore, I say, "Look well before you leap"—consult the United States Employment Service if, after reading this message, you still feel in doubt—though you should not be in doubt.

A Basic Industry of State

The pulp and paper industry has become one of Washington state's basic industries. These products are vital to communication and education. The tremendous importance of communication in wartime needs no elaboration from me. Education becomes a powerful weapon of war in the form of propaganda. There just simply wouldn't be any communication or propaganda in any effective form for the waging of a modern, total war without the paper from your mills.

Our Selective Service System just could not function without it. I could not be giving you this message, reassuring you about the work that you are doing, without it. If this message helps in the efforts to bring to a stop the costly, haphazard drifting of labor and to stabilize a vital industry, then I feel that it is just as important as any of the official business that is carried on by our Selective Service System or any other war agencies of the United States Government.

But I don't want to dwell too much on the strategic uses of paper in fighting a victorious war, which are important enough, as every thoughtful person will recognize. We want also to remember that the four freedoms we are fighting for would be practically meaningless without the products of your mills.

Highlights of Colonel DeLong's Message

"Your industry is one of those essential civilian activities which is on an equal plane with basic war industries."

"The four freedoms we are fighting for would be practically meaningless without the products of your mills."

"The lack of paper and of many other products of wood pulp would bring to a disastrous stop our essential civilian economy."

*"I regret that you usually cannot be told the very product you are handling not only MAY be going—it probably is going—to the Solomons or India or Alaska or North Africa
 + + + the South Pacific, the North Atlantic or the Mediterranean + + + England or Russia or China."*

"My office and your local board is fully aware that most of your products are going directly to Uncle Sam, to his army and navy, to war plants or shipyards."

"Nitrating wood pulp is produced in large quantities in this state as a raw material for smokeless powder. Some of your mills are converted 100 per cent to this production."

"I have repeatedly appealed to men with children to leave employment in non-essential activities and seek employment in civilian activities such as yours."

And I am not only thinking of paper, but of rayon pulp and of the many other uses of wood pulp when I say we owe many of the material things which have helped to create the highest standard of living in the world in this country to your industry.

The lack of paper and of many other products of wood pulp would bring to a disastrous stop our essential civilian economy.

I sincerely regret that you men in our pulp mills usually cannot be told that the very product you are handling today may be going tomorrow to our troops in the Solomons or India or Alaska or North Africa, or to our sailors in the South Pacific, in the North Atlantic, or in the Mediterranean. Or it may be bound to England, or Russia, or China. It not only may be going there—it probably is going to one of those points. But until we have licked the submarines, we must keep a few things secret, and one important secret is the transportation of vital war materials. But my office and your local Selective Service board is fully aware that most of your products are going directly to Uncle Sam, to his army and navy, or to war plants or shipyards.

Helping Kill Germans and Japs

● It is well known to us—although it certainly is not common knowledge, even in your communities—that some of the products of your

mills go into the gunpowder fired by our boys on the many battlefronts of this war. I am speaking, of course, of the nitrating wood pulp that is produced in large quantities in this state as the raw material for smokeless powder. Some of your mills are converted 100 per cent to the production of this nitrating pulp and nothing else comes out of those mills until the last shot is fired in this war. Certainly you men engaged in that work can feel that you are actually helping our boys in uniform to defend themselves against the enemy and that you are helping them to kill Germans and Japs and Italians in a really big way.

I regret that publicity cannot be given to the work of these mills in the way that it is given to other war industries. We should always keep in mind that your mills represent a permanent industry in the Pacific Northwest, whereas much of our war production may be considered to be temporary.

In speaking to you men of the pulp and paper industry, I want to digress for a moment and give you something of the problem with which the Selective Service System is presented. Our problem is the great problem of the allocation of manpower. In a broad sense, manpower means human power. It involves the effort of every man, woman, and child within the nation. The principal point in the national manpower program is the

allocation of manpower to the armed forces, war industries, agriculture, and other essential civilian activities. Another important point upon which attention is now being focused is the transfer of workers from less essential activities to activities essential to the support of the war effort.

During the past twelve months I have repeatedly appealed to those married men with children (who maintain bona fide family relationships and who are defined as such within the Selective Service Regulations) to leave employment in non-essential activities and seek employment in those civilian activities such as yours, supporting the war effort.

I think that every reader will agree that: "The obligation to contribute military service in defense of the common safety is as old as the law of self-preservation. Men of all races and wherever found have accepted this obligation as an inherent part of communal existence." Therefore, it follows that every citizen is obligated to join in the common defense.

Occupational Deferment

● Under the Selective Training and Service Act of 1940, as amended, every able-bodied male resident, subject to several exceptions, between the ages of 18 and 45, today is liable for military training and service. "What about the man who has been occupationally deferred?"—you ask. Yes, what about him? Even he is laible. Deferment is not exemption. Deferment is temporary. True, at the expiration of the deferment a registrant's classification shall be reopened and he shall be classified anew, and the local board may find that another occupational deferment is warranted. But here again, the maximum period must be limited to six months.

I want to make it clear that there is no such thing as an occupational deferment for one, regardless of his skill, in a non-essential industry. To be considered for an occupational deferment a registrant must be employed in a war production industry or in an essential civilian activity, such as the pulp and paper industry. Moreover, the man who is considered for occupational deferment must possess the skill required for the proper discharge of the duties involved in his occupation, and he must be irreplaceable.

There is another element to which the local board invariably gives

serious consideration when considering a request for occupational deferment from an essential activity. That element is the registrant's record of employment. Absenteeism in the man's record operates against a favorable decision by the local board. Proper allocation of manpower means that only the producer should remain at his civilian task where a choice is available. This is total war—and total war means total effort. We must not fail our nation in the important task of producing to the maximum of our ability.

Our armed forces are growing at an unprecedented rate, not because it is the mere desire of some individual, but simply because the stern facts of war dictate the necessity to do a job. All will agree with that single men should be the first to go, and, following these, married men without children. Personally, I do not relish the induction of married men with children, but this will be necessary only if such fathers are engaged in non-essential activities. Fathers who are engaged in such essential activities as the pulp and paper industry have the best chance of remaining in their civilian activities.

Paper Saves Planes, Ships

● Many will ask why the pulp and paper industry is an essential civilian activity. Take the production of paper, for example. We know today that paper packaging produced by your mills is saving cargo ship and airplane space. Smaller and lighter weight containers make it possible to carry larger quantities of blood plasma, munitions, food and other supplies to our boys in uniform and to our allies.

You may be sure that I was very interested to know that the Pan American Airways have been doing a vastly improved job of carrying needed military supplies at a saving of 500 pounds per plane by insisting that practically all cargoes have been packed in paperboard. Such savings can tremendously increase the capacities of the ships, the supply trucks and the airplanes that are being produced in our shipyards and factories.

We who have the responsibility of conducting the Selective Service System in this state also are aware that other pulp mills in Washington have become a principal source of the raw material for rayon, one of our most precious war products. Rayon is now being principally produced from wood pulp. And nearly half of all the rayon now being produced in this country is going to new direct war uses.

This year, rayon made from wood pulp from our great Northwest forests will be used in such important war products as rubber tires, self-sealing gasoline tanks, bullet-proof hose, aerial delivery and cargo chutes, shroud lines, tow targets, uniforms, overcoat and sleeping bag linings, blankets, mustard gas proof slickers, powder bag and cartridge cloth, paulin cloth, mosquito netting, neckerchiefs, mufflers and neckties, flags, pennants, insignia and chevrons, tapes and helmet webbings.

To anyone who doubts the essential nature of your work, I recommend that only a superficial survey of some of the wartime products of paper will change his mind. Among these products may be listed the army and marine field ration cartons, dried egg cartons for lend-lease shipment, moisture proof and grease-resistant containers, waterproof papers, blueprint and graph paper, cellophane bags and liners, pharmaceutical and medicine packages of all kinds, paper shell cases and mortar carriers, camouflage roofing materials, paper bandages, industrial wrappings, heavy fiber board and corrugated board drums for lend-lease shipments of heavy materials, weatherproof cartons for service shoes and rubbers, paper that is used at Boeing's and other airplane factories as temporary protective covering of instruments and other parts during manufacture, and

special paper wrappings for critical airplane and tank parts during transport.

Smokeless Powder Vital

● To this list, innumerable new uses of paper could be added.

There is possibly no product of more vital interest to the United States Army than smokeless powder and the use of wood pulp for its manufacture is increasing. The United States Army is also keenly interested in the many possibilities of substituting paper and paperboard for scarce materials. The use of paper-base plastics in various parts of airplanes already has proved successful.

At the direction of the War Production Board, the laboratories of American pulp and paper mills are working on thirty-three specific projects to improve the quality of certain papers for war uses. These are definitely assigned projects and there are many more experiments being made.

We of the Selective Service System know that your pulp and paper mills have been streamlining their output to the real essentials of wartime. Last year three pulp and paper mills in this state were shut down because of the shortage of logs. As officially stated, this shutdown was not because of any opinion held as to the essential nature of your work. It was a forced closure

More Highlights—

"To be considered for an occupational deferment a registrant must be employed in a war production industry or an essential civilian activity, such as the pulp and paper industry."

"Absenteeism in a man's record operates against a favorable decision by the local board (on a request for occupational deferment)."

"We know that paper packaging produced by your mills is saving cargo ship and airplane space."

"We are aware that other pulp mills have become a principal source of raw material for rayon, one of our most precious war products. This year rayon made from wood pulp will be used in rubber tires, aerial cargo chutes, shroud lines, uniforms, etc."

"In many of your mills the machine shops are almost exclusively engaged in finishing rudder assemblies, paravanes, winches, valves and other metal parts for warships and cargo ships."

"Your mills represent a permanent industry, whereas much of our war production may be considered to be temporary."

"You are in one of the pioneer industries of this state, one of its most important industries. Don't sell it short."

simply because of the shortage of raw materials with which you do your work.

It is not in my province to speculate on what future streamlining, if any, may be done by pulp and paper mills. Now, it is recognized by your Selective Service System and by many agencies of the government which are engaged in directing our war effort that we are entering a period during which we must preserve the essential work of the pulp and paper mills of this state. With what is left, your industry must bend every effort to getting out every ounce of production possible. With the raw materials that you now have, you men of the mills are counted on to give as wholeheartedly to the winning of the war as the boys who are packing a rifle and offering their lives.

It would be leaving out a very

important essential war work of your mills if I failed to mention the enterprise of your mill machine shops. Fortunately for Uncle Sam, your pulp and paper mills are equipped with some of the finest machine shops in any industrial plants of the Northwest. You have needed them in the past to keep in repair your intricate paper making machinery.

Machine Shop War Work

● Now, in many of your mills, the machine shops are almost exclusively engaged in finishing rudder assemblies, paravanes, ship screws, winches, valves of all kinds, and many other heavy metal parts for warships and cargo ships. Many of your mills are doing this work at no profit. Your mills came to the rescue to solve one of the serious bottle necks in shipbuilding.

It is only natural that the flag-

waving and the speech-making take place at the shipyards. The last man to weld a ship plate, it may seem to you, is the one who gets credit for building the ship. All I can suggest is that you-men will just have to be philosophical about that. And remember that we know what is being done in your machine shops.

In conclusion, our nation in war has the right to demand of every individual that he support the war effort and that this support be accomplished with effectiveness.

It is most important that you appreciate that you are in an industry which is essential to the successful conduct of this war. You are in one of the pioneer industries of this state, one of its most important industries. Here in the Northwest is one of the great sources of wood pulp of the world. Don't sell it short.

Jaite Bags Floated Ashore With U. S. Army Supplies

● The Jaite Bag Company of St. Helens, Ore., is producing 98 per cent for essential war time use, according to L. A. Linville, manager.

One of the most interesting of the bags being manufactured in this plant is the so-called "subsistence" bag for the army. The specifications for bags to contain rice, beans and peas call for something which to the layman would appear impossible to be made out of paper.

Troops land nowadays without waiting for docks to be built and food must land at the same place, immediately following and consistently thereafter. It has been found that the most convenient way to unload these food materials is to throw them overboard into the water to be picked up by men who have waded out from shore. Naturally foods would be the worse for this treatment if the salt water got to them and here is where the paper subsistence bag comes in.

To contain foods which will be subjected to the jettisoning method of unloading, the paper subsistence bag is built of five layers of paper. The inner layer is of 50 pound kraft, and the next layer to it is an asphalt laminated sheet. Another sheet of 50 pound kraft is again followed by an asphalt laminated sheet and as the fifth layer a sheet of 60 pound high wet strength paper is

used. This is the outer layer of the bag and designed to stand up under the treatment described above. The tops and bottoms of these bags are sewed and treated with a waterproofing material.

Quantities of these bags are being produced, with the major limiting factor at this time being the shortage of labor supply.

(For a discussion of high wet strength paper made especially for floating cargoes ashore at military outposts, see the report on the recent TAPPI meeting in Portland, Ore., published in this issue).

Fibreboard Men Honored For Long Service

● Fickle certainly is not the word to describe the average employee of Fibreboard Products Inc. of Port Angeles, Wash.

Seventy-three per cent of the employees have been working in the plant for more than five years, 49 per cent more than ten years and 27 per cent more than fifteen years. This last group is just as large as the group who have had less than five years in the plant.

These records were revealed when service pin awards were made at a recent Pivot Man's Club dinner when R. E. Bundy, manager, presented 20 year pins to Roy Annis and Svend Peterson and 15 year pins to Frank Simmons and G. M. Marvin. Mr. Bundy also received a 15 year pin.

Houston Heads Safety Fund Raising Committee

● Pulp and paper mills are joining with other essential wartime industries in contributing to the War Production Fund to Conserve Manpower. This is a nation wide safety project initiated as a result of a request by President Roosevelt that action be taken to check the increasing accident toll among war workers, both on and off the job.

Morton B. Houston, vice president of Rayonier Incorporated, is in charge of raising the \$3,000 quota of the pulp and paper mills in Washington State. Chairman of the drive in that state for all industries is R. J. Lamont, president of Seattle-Tacoma Shipbuilding Corporation.

A \$5,000,000 national fund is to be used over a period of two years to co-operate with existing safety agencies in extension of accident prevention techniques now reaching only half the industrial workers of the country and only one-tenth of the general population.

It is pointed out that accidents are killing 50,000 workmen annually, costing four billion dollars a year or the equivalent of enough man-days to build 23,000 heavy bombers. Mills already supporting their own successful safety campaigns are urged to contribute to this national fund because of its application to off-the-job accidents, for self-interest and for patriotic motives.

The Fund is approved by the National Association of Manufacturers and its expenditures are to be controlled by the National Safety Council officers and trustees. W. A. Irvin of U. S. Steel Corp. is chairman of the fund and the treasurer is Thomas W. Lamont of Morgan & Co.

Port Angeles Fibreboard Men Are Promoted

● Robert E. Bundy, resident manager of the Port Angeles, Wash., plant of Fibreboard Products Inc., since 1936, has been promoted to the position of vice president and general manager of Federal Container Co. of Philadelphia, a Fibreboard subsidiary.

C. Vernon Basom, board mill superintendent at the Port Angeles plant, has been promoted to the position of resident manager.



ROBERT E. BUNDY, new Vice President and General Manager of Federal Container Co.

These and several other promotions at the Port Angeles plant of veteran employees, all made possible by the advancement and transfer of Mr. Bundy, were announced by N. M. Brisbois of San Francisco, vice president in charge of operations of Fibreboard Products Inc.

Following the trail of other young Pacific Coast men who have taken on high industrial positions in the east, Mr. Bundy left for Philadelphia February 25. In his new responsibility, Mr. Bundy will manage two plants—one at Philadelphia and the other at Baltimore.

The two plants of the Federal Container Co., which Mr. Bundy will manage, manufacture container boxes and allied products which are used largely for shipments of food under the lend-lease law.

Other Promotions

● Other Port Angeles promotions announced by Mr. Brisbois follow:

Charles F. Meagher, night board mill superintendent, to mill superintendent.

Arthur Nelson Hartnagle, chief chemist, to assistant resident manager and chief chemist.

H. E. Shellshear to night board mill superintendent.

Harold Biglow, to relief night board mill superintendent.

Norman Lloyd to machine tender.

Lyle Lewis to back tender.

Mr. Bundy, after graduating from the University of Washington School of Forestry, went to Port Angeles in 1928 and worked first in the yard at the Washington Pulp & Paper Corporation plant and later was in the chemistry department there before transferring to the laboratory of the Fibreboard plant in 1930. He became assistant manager under Manager Jack Martin and manager when Mr. Martin was transferred to Portland in 1936.

Basom Was at Sumner

Mr. Basom, the new resident manager at Port Angeles, started as an employee for Fibreboard Products Inc., at the Sumner, Wash., plant in 1916. He was transferred to Port Angeles in 1918 when the mill there was under construction.

Mr. Meagher, the new mill superintendent, was born in Port Angeles but was first employed by the Fibreboard company about 30 years ago in Seattle. He worked at the Anti-



C. VERNON BASOM, named Manager of the Port Angeles, Wash., plant.

och, Calif., and Sumner plants before starting work at the plant in his home town nearly 25 years ago.

Mr. Hartnagle was graduated from the Department of Chemistry at the University of Washington and entered the chemistry department of the Port Angeles plant in 1928.

St. Helens, Tops In State, Boosts Bond Sales; Rau Chosen for High Honor

● Not satisfied with having the best war bond sales record of any large industrial firm in the entire state of Oregon, the St. Helens Pulp and Paper Company has boosted its own record-setting mark by more than half a percentage point.

The plant at St. Helens, Ore., had 10.5 per cent of its payroll going into war saving when it was officially cited and praised for out-doing every other industrial firm in the state with over 500 employees. During the past month the St. Helens plant raised its own figure to 11.2 per cent of payroll.

One hundred per cent of the mill personnel is buying bonds. Irving T. Rau, secretary-treasurer of the St. Helens Pulp and Paper Company and chairman of the Columbia County War Savings Bond Committee is pointing with satisfaction to the record of the plant.

Mr. Rau represented Columbia County in becoming a member of the Millionaires Club over radio station KOIN. Membership in this club is granted to those having been instrumental in selling over one million dollars worth of war bonds. Mr. Rau, as chairman of his county committee accepted the honor. Columbia County was the first county in Oregon after Multnomah County to place their committee chairman on this coveted roll.

Coast Wage Agreement May Be Reopened

● Informal inquiries among labor officials attending the annual mid-winter meeting at Portland of the executive board of Pacific Coast Pulp & Paper Mill Employees Association indicated there will be strong sentiment this spring in favor of reopening the Pacific Coast wage agreement, according to the Pulp & Paper Mill News, official organ of the employees association.

The monthly newspaper's report of the Portland meeting went on to say that the move to reopen the agreement would be based on two developments:

1. The heavy increase in living costs.
2. The sizable increases in wages recently accorded the lumber workers.

The executive board decided that their association hereafter will underwrite expenses of member locals which have complaints before the joint labor relations board.

A member of the board will be present at meetings on interpretations of the uniform wage agreement and similar gatherings, will take complete notes and make a report for distribution to member locals.

Wartime Women Employees Bring New Personnel Problems

by VERA WHITNEY BERNEY, Assistant Personnel Supervisor, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., Camas, Washington.

MORE than ever before in history, this is a woman's war as well as a man's war. Women are being urged and attracted into industrial activities which heretofore have been considered strictly a man's domain. There are many ways in which we can try to facilitate the adjustments which must take place.

We have about 500 women employed in our plant at Camas. We find that the women who seek employment at our plant fall roughly into four different classifications.

The first is the young woman who is a drifter. She is there today and gone tomorrow. She is out to see the country, or she has given her heart to some soldier boy and naturally she has to follow her heart. Maybe in order to be near him she will work at Camas one week, at Seattle the next, and somewhere in California the third. At any rate, the girl who has the wanderlust stays only long enough to earn money to go on to the next place. And we can't do much about it.

In dealing with the other three groups of women we find that we need to recognize the fact that, for them, applying for work is largely an emotional situation.



Mrs. VERA WHITNEY BERNEY, For most women today applying for work is largely an emotional situation.

• On first glance, this may appear to be an article "for women only." But it isn't. The ladies are with us in the mills to stay—for the duration. It behooves managers, superintendents and supervisors to learn more about the female of the species.

Many mill managers and personnel directors are faced with new problems these days because of the influx of women war workers in the pulp and paper industries.

In the fourteen months following the declaration of war, more than 600 women were placed in jobs formerly held by men in the mills of Washington and Oregon alone. Further conversions of jobs in this way were planned. Including women employed before Pearl Harbor, mostly in finishing rooms, the feminine labor contingents in mills in those two states rose to about 1,500.

Making these conversions to help the war effort, the mills were confronted with material problems—federal and state limitations on the weight lifting work women may do, the need for women's rest rooms in plants (which had to be constructed in large part from critical materials), etc.

But, besides the material problems, there also arose what might be called intangible or "spiritual" problems. In the following article, a women's personnel director makes some points that might be helpful to others in the industry. Not only helpful in relations with women employees . . . but at the end of this article is some motherly advice for the men of the mills, too.

The first of these groups is the woman whose husband is just leaving for the service. Perhaps she doesn't need the work as far as money is concerned. He may be going into the service on a basis of adequate pay. As she looks ahead, she feels she must bridge the gap from one lonely day to the next.

More often, of course, when the husband leaves, the wife must earn money. She has house payments to keep up, or car payments to make, or has to meet the hundred and one other bills that somehow creep up

on us all. She has income tax time approaching; she may have a young child at home. The consciousness of these problems coupled with the strain of her husband's leaving, and the natural fear she feels at undertaking a strange job, all combine to create an emotional situation for her which we do well to recognize.

We at Camas have tried to lighten her burden by making work immediately available for the wife of every service man, or in some instances, it is the mother or the sister—if the son or brother has been hearing the support of the family. In these days when we need additional women, we always have work available, but even a few months ago, we saw to it that these women had work as soon as their husbands left, or even before, so that they could look to the future with a feeling of financial security.

Keep Records of Service Men's Wives

● We even keep a record of every man who goes into the service from our plant, a record of what his wife is doing—whether she is working with us or elsewhere. I have spent many hours contacting the wives of these men in order to ascertain their situations and to make sure that every woman is provided for, if she is employable, as far as a job is concerned.

Another group of new employees whose emotions are largely in the foreground these days are the women who are coming from other states with their husbands seeking work in some vital industry.

In order to describe the women in this group let me tell the stories of Mary and Clara who came to my office to apply for work one afternoon.

Mary had just come to town with her husband and two children. She had lived in a small community in the northern part of the state. She had her home there, her friends, her church and community activities. She had never worked for wages before. She went to work in our converting plant. Imagine, if you will, the adjustment which it was

necessary for her to make. She had to become accustomed to strange surroundings, unfamiliar work, the speed and noise of machines, as well as the necessity of working with people who were complete strangers to her.

Clara went to work in our bag factory. She had come from a farm in Idaho. They had sold their dairy cows to the butcher. She sold her prize chickens for 50 cents apiece. She had left the familiar surroundings she had known all her life. She had worried before she even went in to work. She, too, had all these adjustments to make. She said, "I've worked hard all my life, but I've never done factory work before. I don't know whether I can."

It is in situations like these in which every supervisor who comes in contact with new employees must try to exercise tact and sympathy.

Job Instructor Training Essential

● We must recognize the emotional strain under which these women start to work. It is a place where job instructor training is not only valuable, but essential in the effort to help these women adjust themselves as rapidly as possible before they become discouraged and quit.

It is a situation in which just plain kindness must have a part. As one of our Oregon authors said recently, "The ministry of kindness: We cannot turn from it and survive. The simplest laborer can accomplish miracles with it."

The last group of women I want to mention is that group who want to help with the war effort. Of course, they like the extra money. They can help pay off on the house more rapidly or buy a fur coat, but the real issue is that they feel that they should be doing their bit.

In order to release as many men as possible for direct war work in our plant or elsewhere, and in order to replace men who have gone into the service, we have had our jobs surveyed and have made every effort to place women on any job which is suitable for them. We have women operating machines, women as sulphite testers and beater testers, women on cleanup jobs. We even have a girl with one arm operating the elevator at the dock. So we have tried to give these women who have come to us in the spirit of helpfulness the feeling that we, too, are utilizing every opportunity to help the war effort.

Many of these have children and no one to care for them. Realizing this situation, the service clubs in

Camas sponsored the establishment of a day nursery. Our corporation pays the rent and furnished the equipment. We are told this is the first nursery in the state in actual operation under the Lanham act, passed by Congress to deal particularly with the problem in war industry areas and which provides funds for attendants' salaries.

Then there are the older women who come seeking work because they have sons or relatives in the service. There again we have tried to cooperate by raising the age limit for hiring to the highest age feasible. These women are so sincere. They want to work because they know industry needs them and they want to buy bonds.

There is, for example, the case of Mrs. Wilson. She told me she had lost four brothers in this war—one at Wake Island, one on Bataan and two in the Solomons. Her son is bieng called and she said she couldn't sit at home doing nothing when they had given their lives. She wanted to work to buy bonds.

We, as an industry, have tried to ease the burden of all these women by making suitable work readily available, by providing job instruction, by providing housing and equipment for a day nursery for their children, by conducting community surveys in an effort to provide adequate housing facilities.

But all of this is not enough. There is more that we as an industry can do—not just for the women going into our mills but for all of us. It seems to me there are three priorities we must try to attain.

Three Things We Must Do

● The first priority is a conscious attempt to improve our own moral and spiritual fiber. Because we are under strain and stress, the little things are more important than ever. We must try to develop more patience, take more time to be courteous. We must not let ourselves worry. We need to stop worrying and concentrate on the jobs we are doing. We need to relax, count our blessings, not think how bad things are. Tires and gas may be scarce, but home is the safest place, anyway. Food may be rationed and butter hard to get, but most of us women still wish we weighed a few pounds less.

The second priority in this building of character is simply a continuation of the first. Let us call it our influence on others. Each of us casts a personality shadow—the influence of our character on others. Let it be an influence which digs wells of

hope and comfort and encouragement.

The third priority is spiritual security. We have heard of social security, financial security, but we need spiritual security. Many people are saying "why does God permit such a terrible war?" We are confused by the things we hear. Sometimes we scarcely know wherein to place our trust. We must have faith in God. He is alive and working in this conflict but we have the confusion of this day because we as people of the world have failed to cooperate. Spiritual deficiencies are the real bottlenecks in our nation today.

Pulp Men Chosen By Rail Advisory Board

● Pulp and paper men are well represented in the Pacific Northwest organization which advises the railroads on the car needs of all industries in that section.

The recent choice of the nominating for executive secretary of the Northwest Railway Advisory Board was H. E. Kerry, general traffic manager of Rayonier Incorporated, Seattle. Gordon Tongue of Superior Portland Cement Co., Seattle, was the choice for president, and H. D. Smith, Weyerhaeuser Sales Co., Tacoma, for vice-president.

Two of the twelve men named for the executive committee were R. E. de Lopez, traffic manager of Puget Sound Pulp & Timber Co., Bellingham, Wash., and A. M. Cloning, traffic manager, Longview Fibre Co., Longview, Wash.

Lumbering interests had two representatives in H. J. Cox, secretary of the Willamette Valley Lumbermen's Association, and Ralph Benson of C. D. Johnson Lumber Corp., Portland.

The Advisory Board is doing a highly accurate job of forecasting railway car needs on a quarterly basis.

John Fulton At Naval School

● John M. Fulton, beckoned a month ago by the Navy to its aviation administrative indoctrination school at Dartmouth College from his former post as manager of the Pacific Coast Supply Company, says so far "it has been a great experience." Except the few days, he added, when it was 40 degrees below on the Connecticut River shores.

His address: John M. Fulton, USNR, 733-59-28, Room 3, Smith Hall, N.T.S., Dartmouth College, Hanover, N. H.

LeRoux Visits Son In Everett

● Mr. and Mrs. O. L. LeRoux of Brainerd, Minnesota, arrived in Everett February 20th for a visit of several weeks with their son and daughter-in-law, Mr. and Mrs. Russell J. LeRoux.

Mr. LeRoux is mill manager of the Northwest Paper Company's Brainerd mill which produces groundwood book and tablet, hanging and sulphite and kraft specialties. Russell J. LeRoux is manager of the Everett Mill, Pulp Division Weyerhaeuser Timber Company.

Wood Pulp Allocation And 1943 Wood and Pulp Prospects

by OLIVER M. PORTER*

Wood Pulp Allocation

● It was my privilege to be connected with the War Production Board's Pulp and Paper Branch, as it was then known, when it was developing its plans for the allocation of wood pulp.

The task involved the creation of an entirely new system of controlled distribution. The purpose of this system was to make sure that enough pulp of the right kind would be available where and when it was needed for essential war and civilian production. Such distribution involved supplies of pulp not only for all kinds of paper and paperboard, but also for non-paper uses of pulp—in the manufacture of explosives, rayon, cellophane, plastics, etc.

Weeks and months of work were required to prepare what you now know as "M-93" and its various "PD 290" forms, and to create a system for recording the information contained on those forms in such a way that all the mass of these data could be checked, analyzed and boiled down to the point of issuing permission to ship and to receive about nine hundred thousand tons of pulp every thirty days.

Truly a Herculean task was accomplished—and right here I want to pay the highest tribute to the men and women of the Pulp Unit, and particularly to its presiding genius, David Graham. The Pulp and Paper Division and the Pulp and Paper Industry are extraordinarily fortunate in having had him as head of that Unit. He is a remarkable combination of patience and persistence, and above all is a man who knows figures and how to use them.

Pulp Allocation works—and I believe that there is no one who can rightfully say that it doesn't—because of his rare vision and ability. If ever a civilian deserved a Distinguished Service Medal, he does. Through him, and his associates in the WPB, the wheels of production in your industry have been kept rolling, and no one yet has had to shut down because of a lack of wood pulp.

*Executive Director, United States Pulp Producers Association, New York. Presented at the Annual Meeting of TAPPI, February 18, 1943.

How Pulp Allocation Works

● You might like to know just how Pulp Allocation works.

Before the 2nd of each month, every consumer of wood pulp files with his normal sources of supply a request for his requirements during the following month. Consumers also furnish certain information to the WPB regarding their actual and estimated pulp consumption, inventories, etc.

These requests for pulp are then reviewed by the pulp producer, who, in turn, files with the WPB his proposed shipping schedule, actual and anticipated production, stocks, etc.

All of these data are checked as to accuracy and are then recorded in large ledgers, which show the consumers' requirements, the extent to which their normal suppliers (including Canadian manufacturers) propose to meet these requirements during the following month, and their previous consumption and inventories—and all this by 22 separate grades or kinds of wood pulp.

From these thousands of individual entries, the staff of the Pulp Unit then draws up totals for each grade of pulp, showing the month's requirements balanced against potential supply. The individual consumers' requirements are then checked against his producers' proposed shipping schedules and his own inventories to determine whether or not he should receive the amounts of pulp he has requested.

Objectives of Pulp Allocation

● Bear in mind the objectives of Pulp Allocation:

1. To maintain production.
2. To provide enough pulp of the right kind, at the right place, to insure essential war and civilian production.
3. To equalize inventories among consumers.
4. To prevent unnecessary cross-hauling.

It might also be well for you to realize that what the Producer schedules does not control the final allocation to the Consumer. That depends upon the essentiality of his products, the volume of his inventories, and the total available supplies of pulps best suited for his purpose.

It is frequently necessary to adjust the producer's shipping schedules by decreasing or increasing the amounts of various kinds of pulp he proposes to ship. Where total supplies of a specific grade are insufficient in any given month, it is also necessary to substitute usable fibre from other grades than those specified, or to direct shipments from other sources of supply.

Pulp Allocation Advisory Committee

● All of this work is done by Mr. Graham's staff in preparation for monthly meetings of what is known as the Wood Pulp Allocation Industry Advisory Committee. This committee now consists of the following 15 pulp producers and consumers:

Present Members

M. D. Bardeen, Lee Paper Co.
A. W. Berggren, Rayonier.
D. G. Driscoll, Sorg.
G. E. Dyke, Gair.
R. G. Fairburn, Berst-Forster-Dixfield.
R. A. Hayward, Kalamazoo Veg. Parchment.
Amor Hollingsworth, Penobscot.
R. W. Hovey, Oxford.
S. E. Kay, International
J. L. Madden, Hollingsworth & Whitney.
H. O. Nichols, Crown-Zellerbach.
N. L. Nourse, Brown.
G. R. Wallace, Fitchburg.
F. S. Wakeman, Ohio Box Board, and myself.

Former Members

F. W. Brainerd, Scott.
C. H. Conrad, Rayonier.
D. Crocker, Crocker, Burbank.
G. B. Gibson, Union Bag.
H. H. Hanson, Hamilton.
L. K. Larson, Weyerhaeuser.
D. L. Stocker, Michigan Paper.
This is not only a representative committee of pulp consumers and producers, but it is one of the most objective and hardworking of all of the advisory committees which I have seen functioning in Washington.

It does not allocate pulp. Its function is to review the allocation set-up proposed by the Pulp Unit and to make recommendations as to any changes which may seem necessary or desirable. These are then reviewed by the Pulp Unit before approved shipping schedules are issued by the Director of Industry

Operations.

The Allocation Committee does its job thoroughly. Two men, a producer and a consumer, pair together and study every single proposed shipment in the ledger on which they happen to be working. Care is exercised to see that no consumer and no producer works on his own schedule. In cases of doubt as to a mill's requirements, either the judgment of others on the committee who are familiar with the particular situation involved, or that of the whole committee, is requested by the pair who are reviewing the schedule in question.

It may seem a little strange to you, but it is a fact nevertheless—the same care is exercised in the case of a shipment of 25 tons of pulp as in that involving 500 or a 1,000 tons. The Committee works two days on each month's allocation, frequently far into the night.

Conditions of inventories, requirements and potential supplies which exist one month may be quite different the following month, and each receives the best judgment of the Committee based on the facts developed by the system itself. Thus if you do not get all of the Bleached Sulphite, for example, which you have ordered in any one month, you are not on a one-way street and headed for a shut down, because your particular situation will be reviewed and corrected if possible the following month.

In addition to the actual details of pulp allocation, the Committee's advice is continually sought in respect to matters of policy. It is in this field, perhaps, that the Committee's work is of the most value to the WPB and the industry, because its recommendations are based on practical experience with the problems of the Industry.

How You Can Help

● There are two things which you, your companies, can do which will help this pulp allocation tremendously:

First, see to it that your PD 290 forms are filed promptly, as required under M-93. Second, be sure that your figures, as reported to the WPB, are correct. If your reports are late, the whole program is delayed—because it is impossible to derive complete totals of supply and demand until all mills' requirements and proposed shipping schedules have been filed with the WPB. If you inadvertently list tonnage as consumed rather than as shipped, the resultant error doubles itself, and requires hours of patient search

through all of these forms and ledger-entries before it is discovered and corrected—as it always is and will be, under the system of checks and balances which Dave Graham has set up for control of this statistical work.

The WPB is now asking for information as to the furnishes used in the production of the papers and paperboards which you manufacture. With the wood situation becoming more and more critical, it is absolutely necessary for the Pulp and Paper Division to have this information in order that, in its pulp allocation, it may stretch to the limit the use of all available fibres in the manufacture of essential war and civilian commodities. I therefore urge your fullest cooperation with the Branch in the preparation of this report.

1943 Wood and Pulp Prospects

● I shall not take any more of your time in discussing Wood Pulp Allocation, but will now turn to the other half of the subject assigned to me, namely: "1943 Wood and Pulp Prospects."

I should like first to deal very briefly with what might be termed the "historical aspects" of this situation:

For some years prior to the outbreak of the present War in Europe, there had been a relatively steady and healthy annual increase in United States production and consumption of wood pulp. Then in 1940-41 came a huge, abnormal increase, due to war demand, and perhaps a somewhat premature alarm over prospective shortages.

The figures themselves tell the story in Table I.

Now let's look at the 1942 situation in Table II.

First as regards wood supply.

Total inventories of Wood decreased some 300,000 cords in 1942. Unfortunately the decreases were not the same, proportionately, in all regions.

Thus in the Appalachian Region the decrease was only 4%, while it was 9% in the Northeast, 45% in the Pacific Northwest, and 64% in the South.

In the Lake States inventories of wood actually increased about 300,000 cords, or 32% during 1942.

As far as Wood Pulp is concerned, the 1942 situation was as is shown in Table III.

1943 Prospects

● Now let us consider briefly what the 1943 prospects are: Starting with Pulpwood: Best present estimates indicate an overall reduction of about 25% from the 1942 supply. By regions the figures work out as is shown in Table IV.

It is probable that imports of wood during 1943 may total 1,700,000 rough cords from Canada. This would be a decrease of about half a million cords from the amount imported during 1942. There is some possibility of this amount being augmented by imports of pulpwood from countries other than Canada and Newfoundland. It is doubtful, however, if we can expect any very substantial amount of wood from such sources this year, though it might become a factor in the post-war period.

One doesn't have to be a technical slide rule expert to figure out the effect on pulp production of a 25% reduction in the amount of

TABLE I

	U. S. Pulp Production	Thousands of Tons or Cords		Total Pulp Imports	Pulp Imports Plus Dom. Production	U. S. Pulpwood Consumption
		U. S. Pulp Imports from Canada	Europe			
1939....	7,000	640	1,400	2,040	9,000	10,800
1940....	8,800	828	400	1,228	10,000	13,700
1941....	10,000	1,131	12	1,143	11,100	15,700**
1942....	10,200*	1,200	0	1,200	11,400***	16,800

*WPB data 10,440 tons

**WPB data 16,200 cords

***WPB data 11,640 tons

TABLE II

Total U. S. Pulpwood inventory as of January 1, 1942.....	3.7
Domestic Pulpwood receipts during 1942.....	14.5
Imports of Canadian wood during 1942.....	2.2
Net Total Supply.....	20.4
Diversions and inventory adjustments.....	.2
The inventory at the end of 1942 was.....	3.4
Indicated 1942 Consumption.....	16.8

available wood supply. In 1942 we produced 10,400,000 tons of wood pulp from a consumption of 16,850,000 cords of wood. If (and there is an "if" here) we can count on only about 12½ million cords of new wood this year, augmented by a drain on inventory of perhaps another ½ million cords, we would have a 13 million cord supply in 1943, in contrast with the 17,000,000 cords of 1942. At the 1942 rate of conversion, wood to pulp, this would indicate a 1943 domestic pulp production of only about 8 to 8½ million tons of new pulp—as compared with the 10 million tons produced last year. Of course if the pulp mills eat further into their 1943 wood piles they could produce more pulp, but by doing so the 1944 situation might be just that much more jeopardized.

It is probable that 1943 pulp imports will just about balance our 1943 exports plus non-paper pulp consumption, which has been steadily increasing, particularly as regards Nitrating pulp for explosives.

Woods Labor Supply

● As far as Pulp is concerned, the whole problem comes down to a question of wood supply, which in turn hinges upon the shortages in woods labor, trucks, tires, etc.

I think it somewhat unlikely that the War Manpower Commission, for example, will be able to do very much toward getting a more adequate supply of woods labor for the pulp and paper industry; but I cannot see why Army woods labor battalions should not be organized and equipped for service in areas of greatest woods labor shortages, for the specific purpose of producing pulpwood and logs. We did just that in the last war, in France; I do not see why it could not be done here in this war.

Paper Production Prospects

● I do not now propose to discuss "concentration" or "relative essentiality"; but I suspect that if the War Production Board's present plans contemplate a production of 4,100,000 tons of paper and paperboard during the first quarter of this year, the public generally would be well-advised to expect production at considerably lower levels than that rate during the latter part of 1943. My own guess is that we will neither be able to produce, nor will we be permitted to produce more than about 13½ to 24 million tons of paper and paperboard this year (as against 16,522,000 tons in 1942)—unless there should be a very sub-

stantial increase in the consumption of old paper stock and substitute fibres, or a turn in the progress of the war which is not now anticipated.

On the other hand, it is not impossible that before the end of 1943 we may find the Paper Industry in the same boat with the automobile industry—in which case there might be quite adequate supplies of wood and pulp for what we would be permitted to manufacture.

But we are going to have less wood to make pulp from this year, and we are going to make less pulp than we did last year. That in itself indicates the necessity of seeing to it that the scarcest kinds of pulps are not wasted in the manufacture of unessential products, and that the fullest possible use is made of waste paper stock and substitute fibres.

I am inclined to think that despite the prospective curtailment in the manufacture of end-products which are not considered essential in an all-out war economy, and despite other limitations in production fields which normally consume very large

amounts of pulp and paper, we will be confronted with a situation whereby there will be only enough pulp available in 1943 to take care of the essential war and civilian paper and paperboard requirements. I am not so sure about 1944. Much will depend upon:

1. The extent to which we can get in more wood during 1943 than now appears likely,
2. Your ability to stretch to the limit the use of available fibres of all kinds; and, of course,
3. The progress of the war.

Stretch Your Fibre Supply

● The war cannot last forever; sooner or later war requirements will begin tapering off in favor of civilian production. But in the meantime you technical men have a job to do in respect to paper and board production—and that is to use every ounce of your ingenuity and ability to make your fibre supply go as far as possible and to last as long as possible, in order that your mills may be in shape to take up the slack when this tapering off

TABLE III
GOVERNMENT DATA

Total U. S. Production, all grades.....	10,440,000 tons
Imports	1,200,000 tons
Stocks (12/31/41)	770,000 tons
	12,410,000 tons
Consumption of Wood Pulp during 1942 is estimated to have been as follows:	
Bleached Sulphite, total	1,860,000 tons
Unbleached Sulphite	1,600,000 tons
Bleached Sulphate	600,000 tons
Semi-bleached Sulphate	165,000 tons
Unbleached Sulphate	3,800,000 tons
Soda Pulp	500,000 tons
Semi-chemical and miscellaneous	600,000 tons
Groundwood	2,000,000 tons
Total	11,125,000 tons
Of this total 1942 Consumption of.....	11,125,000 tons
Integrated mills used	8,305,000 tons or 74.7%
Non-integrated mills used	2,420,000 tons or 21.7%
Non-paper consumption accounted for	400,000 tons or 3.6%
Lend/lease and other exports totaled	401,000 tons
Other materials consumed in the manufacture of the 16,522,000 tons of paper and paperboard produced in 1942 were as follows:	
Waste Paper.....	5,500,000 tons
Other Fibrous Materials	1,190,000 tons
Filler	870,000 tons

TABLE IV
Receipts (Includes Imports)

Region—	Thousands of Cords Actual 1942	Percent of Total	Anticipated 1943	Decrease in Cords
Appalachian	1,455	9%	5,845	1,704
Northeast	3,353	20%		
Lake States	2,741	16%		
South	6,320	38%	4,750	1,570
Pacific Northwest	2,843	17%	2,030	813
Total U. S.	16,712	100%	12,625	4,087

begins to open up the possibility of increased civilian consumption.

The WPB's Pulp and Paper Division

● Now I should like to say just a word about the WPB's Pulp and Paper Division as a whole, as it is presently staffed and operating. They are doing a good job. The executives of that office, from Art Wakeman down, are neither bureaucrats nor "rusting Government employees." They are making a significant and constructive contribution to the winning of this war. None of them will ever get any medals or military decorations for their work; nor are they building a job for themselves in the future, except as what they are doing in Washington will help to preserve our freedoms, and will bring our industry through this national emergency in such shape that it can

meet its obligations now, and be in a position to resume its rightful place in the progressive economy of our New World.

One thing I have noticed, and that is that all of them there in the Pulp and Paper Division are now, more than ever, quite willing and anxious to try to work out their problems with the advice and help of the Industry. They need your help and they want your help. They will do their job if we do ours. But don't try to sell them a gold-brick; they are not in the market for that kind of assistance. They deal with facts, seasoned with the best judgment and experience of practical men from the Industry. If you don't like what they are doing, tell them so; but be prepared to substantiate your opinions with facts, and remember that it takes more than pulp and paper to win a war. Our products are in competition

with those of almost every other domestic industry in the Government's war planning. We shall have to demonstrate our essentiality if we are to be assured of what we might consider reasonable rates of operation.

Our Job!

● The Germans and the Japanese are not in our back yard. God willing, they never will be—but to keep them out, all of us must do that which we are best fitted to do—which is to keep production rolling to the very limit of our ability, with whatever tools we may have, and whatever amounts of raw materials may be available to us. That is the challenge of the present limited supply of wood and pulp, with which all of us in this Industry are confronted. I believe that we shall not fail to meet it effectively!

Rayonier's Shelton Division Expands Employment of Women

Rayonier Incorporated, Shelton Division, at Shelton, Wash., is doing a thorough-going job of putting women in nearly every part of the mill in order to release more men for the armed services or for jobs only men could do. The program contemplates putting women in all kinds of jobs where experience is not necessary or important.

In the first week of March there were 52 women doing various jobs and more were being added continually to the rolls. Last October there were only six women in mill jobs and these were all in the finishing room.

Under direction of the management, Personnel Manager Merritt Butrick was pursuing a program to put more and more women in various departments. Arrangements were made with union officials to employ women in the acid towers and elsewhere in the sulphite mill.

A dozen women were working in the breakdown mill. They were spudding, scaling, operating transfer buttons and off-bearing from the edger. It was contemplated that women would be working also on the Stetson-Ross barker and the Stetson-Ross brouter.

About 225 men have left the Shelton mill to go into armed services. Of this number, about 75 were given certificates which guarantee

them jobs on their return. These certificates go only to the men who were continuously employed in the mill since May, 1940.

Mill Men Become Machinists

A number of men who worked in other parts of the Shelton plant have gone into the machine shop where they have played an important part in the special war work being done there under direction of Jack Ellis, resident engineer, and W. F. McCann, master mechanic.

This work is machining and finishing steering engine parts and other equipment for destroyers and other ships. It is important war work, similar to that done in several other west coast pulp and paper mills. A former mill oiler, another employe from the evaporator department and an ex-chipping plant employe are among men from other mill jobs who have quickly learned to be expert machinists, turning out difficult work with few rejections.

Mr. Butrick, who is charged with carrying out the new personnel policies at Shelton, including lining up the women employes, became personnel manager there last October. Previously he had served for a short time in Rayonier's Tacoma division.

Mr. Butrick was formerly a teacher in Tacoma and Seattle schools. His last pedagogical post had been

at Stadium High School, Tacoma, where he also was Boys Club Advisor. He is a graduate of the University of Washington.

25% of Containerboard Must Go Into Boxes

● Western containerboard mills have been advised by the War Production Board that beginning in April they will be required to set aside 25 per cent of their monthly kraft and jute containerboard production for allocation to container manufacturers making V-boxes for the armed forces and lend-lease.

The kraft containerboard subject to the order includes any grade of containerboard suitable for the manufacture of corrugated or solid fibre containers which uses 50 per cent or more virgin sulphate wood pulp. Jute containerboard includes any grade of paperboard commonly used as a liner, corrugated medium, or filler stock in the manufacture of corrugated or solid fibre boxes. This applies to grades commonly known in the containerboard industry as jute, straw, chestnut, container chip, and "bogus" corrugating materials.

Van Beckum Transferred To Longview

● William G. Van Beckum, formerly of the Wood Conservation Company, Cloquet, Minn., has been transferred to the new Development Laboratory of the Weyerhaeuser Timber Company at Longview.

At Longview Mr. Van Beckum is group leader in applied chemistry, the same position he held with the Wood Conversion Company.

U. S. Nearly Self Sufficient In Pulp Production

Says FRED G. STEVENOT, President, Puget Sound Pulp & Timber Company—"Recent production achievements indicate that the industry is prepared to make the United States independent of foreign sources of chemical pulps."

● United States producers turned out a record total of 10,142,000 tons of wood pulp in 1942, and placed the country on the threshold of independence as to its chemical pulp supply, Fred G. Stevenot, president, Puget Sound Pulp & Timber Co., declared last month.

Total pulp production exceeded the 1941 record by 133,000 tons, a gain made possible by 203,000 tons' increase in production of chemical pulps, while mechanical pulp production declined 70,000 tons.

Domestic consumption set a record at 10,923,000 tons, of which 8,939,000 tons were chemical pulps. Total consumption was 76,000 tons higher than in 1941, while consumption of chemical pulps increased 147,000 tons.

Imports estimated at 1,161,000 tons and exports at 380,000 tons created an import balance of 781,000 tons of all grades combined, which accounted for the excess of domestic consumption over production.

"Recent production achievements indicate that the industry is prepared to make the United States independent of foreign sources for chemical pulps," Mr. Stevenot said.



FRED G. STEVENOT, President, Puget Sound Pulp & Timber Co.

"Maximum chemical pulp production occurred in the 12 months ended June 30, 1942, when 8,645,000 tons were produced by domestic mills. This sustained rate of output was only 285,000 tons less than record consumption in 1942, only 139,000 tons below consumption in 1941. In contrast, chemical pulp consumption in 1939 exceeded domestic production by 1,660,000 tons."

A significant change in trend which occurred in 1942 was cited by Mr. Stevenot as bearing importantly on the coming year's record. Peak production was reached in March, thereafter the curve rounded off, and after mid-year tonnages were below the figures for comparable 1941 periods.

Causes given for this trend shift included reduced backlog of unfilled paper orders, manpower diversion to other essential industries, transportation shortages, Canadian log embargo, government-directed curtailment of operations in certain mills in the Pacific Northwest and closing of others in the fourth quarter.

"Control programs now being worked out will affect future production of pulp and its consumption in products for both military and essential civilian uses," Mr. Stevenot said. "Increase in essential uses of wood pulp is not expected to equal the decrease in non-essential uses. Should this prove not to be the case, performance in 1942 proves the industry's capacity to satisfy both normal and abnormal increased demands."

Canadian Mill Asks For St. Helens Rule Book

Interested in the January article in PACIFIC PULP & PAPER INDUSTRY by Chester B. Gillihan, safety engineer, on the efficiency-stressing safety program at St. Helens Pulp and Paper Company extended to eastern Canada, as well as to many other areas.

After reading the article, R. E. Scott, superintendent of personnel at the Spruce Falls Power and Pulp Company, Kapuskasing, Ontario, sent in a request for a copy of the St. Helens safety rules handbook. This is a book of "dos" and "don'ts" for each department in the plant.

Restrictions on Strapping—And a Conservation Scheme

● It is becoming increasingly difficult to obtain steel or other metal strapping or band iron for shipping containers and for the fastening of material in bundles.

There have been two noteworthy developments of recent date in regard to this shortage. One is a War Production Board conservation order (M-261) drastically restricting the use in the United States of any metal strapping. The other is a scheme for salvaging and re-using old strapping or band iron, worked out by J. R. Booth, Limited, of Ottawa, Canada, producers of lumber, pulp, paper and paperboard.

The WPB order ruled against any further use of wire or band reinforcements or closures on containers excepting those that exceed 90 pounds in weight or .058 pounds per cubic inch or those on which the army, navy or other government agency require the strapping or on containers that will be shipped outside the United States and Canada. Also excepted from the order are wooden food containers, tubs, buckets or pails, barrel hoops, compressed materials and uses of the strapping for closing fiber drums or containers or fastening and blocking materials.

Booth Plan Offered Others

● The Booth firm found its conservation ideas have worked out so well that it is passing them on for the consideration of other pulp and paper mills in a folder prepared by T. H. Weatherdon, sales secretary.

It asked all customers to return strapping so it might be reconditioned and re-used. Many responded to this appeal. But much of the strapping was flattened on the ends, bent and twisted so that it could not be salvaged. To remedy this, the Booth company devised a simple method of coiling the strapping and sent out photographic illustrations of the method.

The first step is to cut the strapping at the joint, thereby saving as much of it as possible. Then a small loop is made and the end secured by gummed tape. Around this, the remainder of the strapping can be coiled easily. When all is coiled, a second piece of gummed tape secures the other end. The coil is ready for shipment back to the pulp or paper mill.

Frank Brown In Hospital

● Frank Brown, superintendent of maintenance of the Puget Sound Pulp & Timber Company, Bellingham, Wash., is recovering from a serious operation performed in mid-February. Frank hoped to get right back on the job, but the doctors said it would be a few weeks before he would be back in harness.

Washington Pollution Bill Expires in Rules Committee

This year the biennial revival of the pulp pollution bill in the Washington legislature went about as far as it did two years ago. It died in the senate rules committee.

The 1943 proposal, much more drastic than 1941's, was entitled Senate Bill No. 74. It was introduced by State Senator H. N. Barney Jackson, Democrat, of Tacoma. It was promoted by the officers of the Pioneer Oyster Company, which had lost a \$1,780,000 damage suit against the Puget Sound Pulp & Timber Company of Bellingham in the federal court in Seattle in the fall of 1941.

Senate Bill No. 74 would have taxed all pulp production in the state of Washington \$5 per ton, the resulting fund to be loaned back to the mills after the war for construction of by-product plants. Meantime the fund raised by the tax would find various uses, including 5 per cent for loans to private oyster operators.

\$5 Was Too Much

● This bill was referred to the senate fisheries committee, which decided the \$5 tax was too confiscatory.

Also that it would be too much of a burden for the Washington state pulp industry in competition with other regions.

An amendment to the bill reduced the tax to \$1. Sixty per cent of the resulting fund was to go to the fisheries department for buying equipment and hiring men for experimental work. Twenty per cent was to be used in propagation of fish and for the rebuilding of runs in streams. Another twenty per cent was to be used for reforestation of logged off watersheds.

With this amendment, the fisheries committee reported to the rules committee with a vote of 5 for, 5 against and one making no recommendation.

The rules committee failed to take any action on it before the constitutional limit date.

There were still a number of days left, however, in the life of the 1943 state legislature. Until final adjournment, there was always the possibility that some other pulp pollution measure might be added as a rider to any number of bills going through the legislative mill.

Morale Campaign Aims to Get Logs; May Be Extended to Pulp and Paper

● A "morale" publicity campaign in Northwest logging communities, masterminded by the War Department in Washington, D. C., may be extended at a later date to the lumber and the pulp and paper mills, according to reliable information reaching the PACIFIC PULP AND PAPER INDUSTRY.

The campaign began in March in an attempt to increase output of logs for war uses and to combat absenteeism.

Three fliers just returned from air battles on the war fronts toured Washington state lumber camps, telling loggers the critical role they have in producing vital materials of war.

Army public relations officer, special representatives of Under Secretary of War Patterson, the Office of War Information, the WPB and the War Manpower Commission officials of western states were combining their talents in direction of the campaign and production of publicity material.

Posters, pamphlets, articles in local newspapers and other media of publicity

were to be used. The loggers' unions were held responsible in each local community for conduct of the campaign. If later extended to the pulp and paper industry, the campaign would publicize war-time uses of pulp and paper.

Some army and OWI officials admitted frankly that more than publicity is needed, however, to get out the logs. They harked back to a Pacific Logging Congress resolution of last January which charged that 5,000 fallers, buckers and riggers were in shipyards and other war plants.

A Plan to Get Loggers Back

● An interesting suggestion made by one important Northwest federal officer is that the government could take advantage of contracts it makes with shipyards and war plants and include provisions that would penalize such industries for illegally employing fallers, buckers and riggers. The industries would be inclined to send such men back to the woods rather than pay a penalty, say, the equivalent of their wages.

Machine Room Bowlers Lead Longview League

● The machine room team moved out in front, taking first place over the supervisors in the early March standings of the Longview Fibre Company Bowling League. The tournament ends April 1. The standings follow as of March 10:

Team	Won	Lost	Pct.
Machine Room	22	6	.786
Supervisors	21	7	.750
Pipefitters	22	10	.688
Office	13	15	.464
Mechanics	13	15	.464
Box Plant	13	15	.464
Pulp Mill	12	16	.429
Bag Plant	7	21	.250
Control	5	23	.179
High individual score—Retzlaff, Mechanics			
			266
High Individual series—Retzlaff, Mechanics			
			687
High team game—Pipefitters			
			1075
High team series—Pipefitters			
			3053

Twenty-One Women Added To Rolls in Port Angeles

● Twenty-one women have been added to the employment roll at the Port Angeles, Wash., division of Rayonier Incorporated.

One is testing in the laboratory and the others have taken over men's jobs in the finishing room, wrapping, weighing, labeling and stamping rolls and bales of pulp.

Working as a roll finisher is Mrs. Glendora C. Cargo, widow, whose three sons left the mill to go into the service. Clyde and Bill are in the army and Eric is in the navy.

Andrews Succeeds Watts As Regional Forester

● Horace J. Andrews has been appointed Regional Forester in charge of Forest Service work in the North Pacific Region, succeeding Lyle F. Watts who became Chief of the Forest Service, January 8.

Headquarters of the North Pacific Region, which includes Washington and Oregon, is at Portland, where Mr. Andrews has been for the last 13 years. These states, which contain most of the nation's remaining old-growth timber, are supplying a major part of wartime lumber and pulp demands.

In 1930 Mr. Andrews was placed in charge of the forest survey project in the Pacific Northwest. In 1939 he became assistant regional forester in charge of the Division of State and Private Forestry. He has served as acting regional forester in the absence of Mr. Watts for several months.

Mr. Andrews, a native of Sidnaw, Michigan, holds two degrees from the University of Michigan. He has worked for private companies in surveying and logging engineering work in the South.



HORACE J. ANDREWS,
new Regional Forester,
U. S. Forest Service.

TAPPI Hears of New Resins For Increasing Wet Strength

ONE hundred men and one woman were present at the March 2 dinner meeting in Portland, Ore., of the Pacific Section of TAPPI. The group was treated to two different discussions by chemists of subjects relating to paper and board making, and to a talk by an engineer on increasing powerhouse efficiency.

The large attendance in spite of war time obstacles to travel indicated exceptional interest in the informative program arranged by Clarence A. Enghouse, vice-chairman of the Pacific Section.

Mr. Enghouse presided at the meeting in the absence of Chairman Edward P. Wood, of Longview, Wash., who had gone to New York to represent the coast group at the national TAPPI convention last month.

At the close of the meeting, Mr. Enghouse called upon two members to stand and take bows for their work in helping to make the program a success. One was Otto L. Hudrlik, of The Flox Co, Portland, who overcame various war-time difficulties in arranging for sufficient food to appease the TAPPI appetites at the Heathman Hotel, where the session was held. The other was Robert M. True, General Dyestuff Corp., Portland, the secretary-treasurer of the Pacific section.

Also taking a bow, along with the guests at the head table was the lone woman in the audience, Miss Barbara Kester, chemist in the paper makers chemical division of the Hercules Powder Co.

Baum Discusses Alum Flocc

Using graphic charts, Robert A. Baum, assistant chief chemist Fern-

Dinner meeting in Portland attended by 101 persons
Three talks on varied subjects provide instruction
May be last Pacific Coast Section meeting for the duration
Executive committee will decide.

strom Paper Mills, Inc., Pomona, Calif., discussed "The Effect of Alum Flocc on Pulp Strength Development" as shown in the results of his own original experiments. This paper is published elsewhere in this issue. In response to a question, Mr. Baum said experiments had shown that his findings were substantially true in connection with kraft production.

Ralph Kumler, technical service, paper division of the American Cyanamid & Chemical Corp., New York, presented a paper that had been prepared by C. S. Maxwell research chemist of the same company, on a new method of producing wet strength paper by the use of melamine resins. This paper was presented by the author, Mr. Maxwell, at the national convention of TAPPI in New York in mid-February.

Interest in wet strength papers and boards has been increased by a recent announcement by the United States Navy of a special department to develop new containers and packaging methods in order to meet the challenge of submarine warfare and to keep our troops and allies overseas supplied with needed materials.

What the Navy wants is paper-board packaging that will resist deterioration in the ocean water when floated ashore from ships, and that will hold up in all kinds of climate and withstand rough handling.

Abstract of Mr. Kumler's Paper

As the full text of the paper presented by Mr. Kumler, "Use of Melamine Resins For Beater Wet Strength," will not be available for publication until the April issue, the following abstract will serve in the meantime to give those who were not present an idea of its contents:

"A new method of producing wet strength paper by the use of a melamine resin is described. The resin is prepared in such a manner that it is retained by the stock in the beater or at any other point of application in the papermaking operation prior to sheet formation. As a result of the unique properties of the resin complex a high retention of the resin is secured and wet strength is imparted to the finished sheet. Particular points of advantage over regular tub application are a marked increase in dry strength, particularly noticeable in folding endurance, and superior permanence of the wet strength properties. The new process may be applied to all types of cellulose fiber, and in conjunction with any of the usual paper-making chemicals. It is noted that the refining of the stock has an important effect on the wet strength. Several commercial applications are cited."

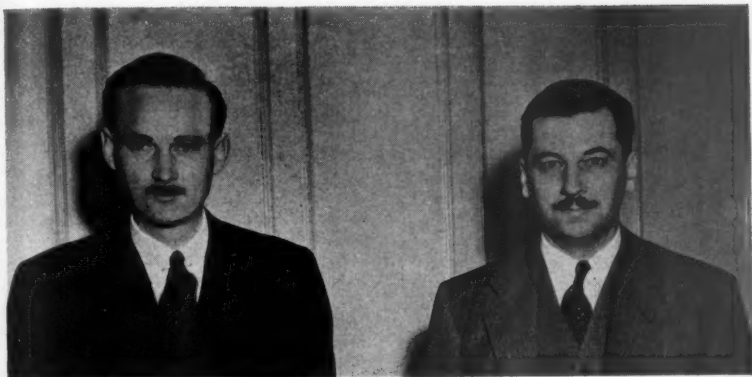
Claude Callaghan, district service engineer, the Flox Company, Tacoma, delivered the third paper of the evening on the subject, "Powerhouse Efficiency." He urged the



Speakers' table at the Portland TAPPI meeting March 2. Left to right: RALPH KUMLER of American Cyanamid and Chemical Corp., New York City, who spoke on melamine resins; HARRY ANDREWS, Control Superintendent, Powell River Co., Powell River, B. C.; W. R. BARBER, Technical Director, Crown Zellerbach Corp., Camas Wash., member of the WPB Paper Industry Technical Development Committee and a past Chairman of the Pacific Section of TAPPI; CLAUDE CALLAGHAN, District Service Engineer, The Flox Company, Tacoma, who spoke on "Powerhouse Efficiency."

CLARENCE A. ENGHOUSE, Assistant Resident Manager, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., and Vice Chairman of the Pacific Section, who presided; ROBERT A. BAUM, Assistant Chief Chemist Fernstrom Paper Mills, Inc., Pomona, Calif., who discussed the effect of alum flocc on pulp strength; CARL E. BRAUN, Vice President and Mill Manager, Hawley Pulp and Paper Co., Oregon City, and a past Chairman of the Pacific Section.

HARLAN SCOTT, Editor, Pacific Pulp and Paper Industry, Seattle, and FRANK A. DRUMB, Director of Industrial and Public Relations, Crown Zellerbach Corp., San Francisco.



ROBERT A. BAUM, Assistant Chief Chemist, Fernstrom Paper Mills, Inc., Pomona, Calif. (left), presented a paper on "The Effect of Alum Flocculation on Pulp Strength Development" at Portland TAPPI dinner March 2.

CLAUDE CALLAGHAN, District Service Engineer, The Flox Company, Tacoma, Wash. (right), spoke on "Powerhouse Efficiency."

keeping of operation records to reduce costs of boiler room and engine room efficiency. He discussed the functional operation of boilers, revealing various techniques that might improve efficiency. A number of ways of effecting economies in the engine room also were cited. Mr. Callaghan's paper is published elsewhere in this issue of **PACIFIC PULP AND PAPER INDUSTRY**.

The final event of the program provided relaxation and keen entertainment. It was a movie reel contributed by one of the mill equipment representatives entitled "Fish From Hell." Sequences showing an octopus pursuing a deep sea diver, a swordfish-whale battle in which the comparative midget contestant was the winner, and the playing of a swordfish on a line and landing him in a small rowboat were the big thrills of the picture.

May Be Last Meeting

This Portland dinner meeting may be the last one until fall, or possibly for the duration. The difficulties of transportation, coupled with those attending the making of arrangements for serving food to large groups, may prevent the continuation of the meetings despite recognition of their usefulness under war time conditions.

The executive committee of the Pacific Section will determine the question of future dinner meetings at its next session, which will probably be held sometime this month.

The following attended the dinner meeting:

• **C. E. Ackley**, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., Lebanon, Ore.; **B. R. Adams**, Hawley Pulp & Paper Co., Oregon City, Ore.; **D. L. Anderson**, Hercules Powder Co., Portland, Ore.; **Harry Andrews**, Powell

River Co., Powell River, B. C.; **W. R. Barber**, Crown Zellerbach Corp., Camas, Wash.; **E. R. Barrett**, A. O. Smith Corp., Seattle, Wash.; **R. A. Baum**, Fernstrom Paper Mills, Inc., Pomona, Calif.; **Geo. H. Beisse**, Pulp Division Weyerhaeuser Timber Co., Longview, Wash.; **Eudore A. Berry**, Longview Fibre Co., Longview; **Carl E. Braun**, Hawley Pulp & Paper Co., Oregon City; **W. S. Boutwell**, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., West Linn, Ore.; **Joseph Briody**, Industrial Chrome Plating Co., Portland.

C. E. Bruner, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., West Linn; **Harold Burkitt**, Industrial Chrome Plating Co., Portland; **Claude W. Callaghan**, The Flox Co., Tacoma, Wash.; **R. E. Chase**, R. E. Chase & Co., Tacoma; **John W. Clarke**, Longview Fibre Co., Longview; **Wm. W. Clarke**, Longview Fibre Co., Longview; **J. V. B. Cox**, Hercules Powder Co., Portland; **John Crosby**, Longview Fibre Co., Longview; **David M. Dibrell**, Longview Fibre Co., Longview; **R. E. Drane**, St. Helens Pulp & Paper Co., St. Helens, Ore.

F. A. Drumb, Crown Zellerbach Corp., San Francisco; **Alec C. Duncan**, Hercules Powder Co., Portland; **J. L. Edwards**, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., Camas; **C. A. Enghouse**, Crown Willamette Paper Co.,

Division of Crown Zellerbach Corp., West Linn; **Ed Escher**, Longview Fibre Co., Longview; **Robert Evenden**, Pacific Pulp & Paper Industry, Portland; **Carl Fahlstrom**, Longview Fibre Co., Longview; **Bert W. Farnes**, R. E. Chase & Co., Portland; **L. G. Fear**, Westinghouse Electric & Mfg. Co., Portland; **O. E. Fox**, Pulp Division, Weyerhaeuser Timber Co., Everett, Wash.

G. H. Gallaway, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., Camas; **Irving R. Gard**, Merrick Scale Mfg. Co., Seattle; **J. E. Garrison**, American Cyanamid & Chemical Corp., Seattle; **Harry W. Glenn**, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., Camas; **T. R. Goodwin**, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., Camas; **Alfred Graef**, Pulp Division Weyerhaeuser Timber Co., Everett; **C. H. Graham**, Bumstead-Woolford Co., Portland.

T. H. Grant, Columbia River Paper Mills, Vancouver, Wash.; **J. A. Harris**, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., West Linn; **John F. Hart**, Longview Fibre Co., Longview; **O. R. Hartwig**, Crown Zellerbach Corp., Portland; **Jan Haugerod**, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., West Linn; **W. H. Haverman**, Pulp Division Weyerhaeuser Timber Co., Longview; **Svarre Hazelquist**, Pulp Division Weyerhaeuser Timber Co., Longview.

Edw. J. Hinde, Pulp Division Weyerhaeuser Timber Co., Longview; **K. L. Howe**, Westinghouse Electric & Mfg. Co., Seattle; **Otto L. Hudrik**, The Flox Co., Portland; **W. F. Hynes**, General Electric Co., Portland; **W. C. Jacoby**, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., Camas; **L. T. Johnson**, Hawley Pulp & Paper Co., Oregon City; **W. A. Kelly**, The Waterbury Felt Co., Skaneateles Falls, N. Y.; **Barbara J. Kester**, Hercules Powder Co., Portland; **John O. Kjome**, Van Waters & Rogers, Portland; **John W. Klein**, Longview Fibre Co., Longview; **Donald Knapp**, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., Camas.

Ralph Kumler, American Cyanamid & Chemical Corp., New York; **K. J. Lineham**, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., Camas; **J. G. Long**, Firtex Insulating Board Co., St. Helens; **R. V. Maier**, General Electric Co., Portland; **Robert W. Martig**, Brown Instrument Co., Portland; **C. J. McAllister**, Simonds Worden White Co., Port-



RALPH KUMLER, Technical Service, Paper Division, American Cyanamid and Chemical Corp., New York City (center), presented a paper at the Portland TAPPI dinner by **C. S. Maxwell**, research chemist, on "Use of Melamine Resins for Beater Wet Strength." With Mr. Kumler at the meeting were **P. J. RONAN** of Azusa, Calif., Pacific Coast manager (left), and **J. E. GARRISON** of Seattle, Northwest manager (right), of American Cyanamid.

land; Joe McQuaid, Electric Steel Foundry Co., Portland; H. N. Miller, Westinghouse Electric & Mfg. Co., Portland; R. G. Misphey, Central Technical Dept., Crown Zellerbach Corp., Camas; C. W. Morden, Morden Machines Co., Portland.

Martin W. Nill, Jr., Longview Fibre Co., Longview; N. H. Norton, Longview Fibre Co., Longview; E. H. Nunn, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., West Linn; Max R. Oberdorfer, St. Helens Pulp & Paper Co., St. Helens; E. E. Olsson, Fibreboard Products Inc., Portland; H. T. Peterson, Pulp Division Weyerhaeuser Timber Co., Longview; Sydney O. Pettitt, Fibreboard Products Inc., Portland; W. B. Porter, Willamette Iron & Steel Corp., Portland; R. K. Pratt, Crown Willamette Paper Co., Division of Crown

Zellerbach Corp., West Linn.

A. S. Quinn, Stebbins Engineering Corp., Seattle; H. C. Ricker, Pulp Division Weyerhaeuser Timber Co., Everett; E. J. Roake, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., West Linn; P. J. Ronan, American Cyanamid & Chemical Corp., Azusa, Calif.; Chas. E. Rozema, Resinous Products & Chemical Co., Portland; Walter A. Salmonson, Simonds Worden White Co., Seattle; Harlan Scott, Pacific Pulp & Paper Industry, Seattle; Leon E. Semke, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., Camas; W. J. Shelton, Longview Fibre Co., Longview; C. Sholdebrand, Hawley Pulp & Paper Co., Oregon City; Larry K. Smith, Pacific Pulp & Paper Industry, Seattle; Ray Smythe, Rice Barton Corp., Portland.

E. H. Tidland, Pacific Coast Supply Co., Portland; R. M. True, General Dystuff Corporation, Portland; R. L. Von Losow, Westinghouse Electric & Mfg. Co., Seattle; H. J. Wagner, Pulp Division Weyerhaeuser Timber Co., Longview; Harold C. Wall, Longview Fibre Co., Longview; Fred J. Weleber, Hawley Pulp & Paper Co., Oregon City; J. W. Wenger, Central Technical Dept., Crown Zellerbach Corp., Camas; R. L. West, Longview Fibre Co., Longview; J. W. Wilcox, Electric Steel Foundry Co., Portland; D. D. Wilma, Longview Fibre Co., Longview; Albert Wilson, Pacific Pulp & Paper Industry, Seattle; Zina A. Wise, Griffith Rubber Mills, Portland, and Herb Wymore, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., Camas.

The Effect of Alum Floc On Pulp Strength Development

by ROBERT A. BAUM*

IN reviewing the available references regarding the effect of papermakers alum, $\text{Al}_2(\text{SO}_4)_3 \cdot 18 \text{H}_2\text{O}$, upon mill waters of varying compositions, and in turn the effect of the alum floc upon strength properties of paper, a fairly complete analysis of this particular reaction can be made.

There is, however, another phase of this reaction that has received little attention and this is the effect of this same flocculated material when it appears in conjunction with pulp furnishes through the pulp treating elements such as beaters, refiners, jordan, etc.

In this manner the effect of such flocculated material may be divided into two sections, namely; the effect of alum floc upon sheet properties at the time of formation from prepared stock and (2) the effect of such material upon the strength development of pulp furnishes in the treating units.

This first effect will be reviewed in the main essentials, followed by an analysis of a series of experiments conducted with the object of ascertaining alum floc effect upon strength development in preparing stock for the paper machine.

A Review of Alum Floc Effect Upon Sheet Formation and Sheet Strength Properties

- To review the effect of alum floc in that phase of paper manufacture

ABSTRACT

● The effect of precipitated material formed by the addition of papermakers alum to waters containing hardness constituents is reviewed in relation to its effect upon sheet formation and resultant sheet strength.

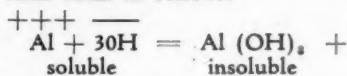
A little investigated phase of the effect of alum floc is presented, in relation to the effect of precipitated water constituents upon the strength development of unbleached sulphite in the treating elements.

taking place from the head-box to the finished sheet, a division into two reactions may be made, (1) the reaction of alum with mill supply water, and (2) the effect of this reaction upon formed sheet strength characteristics.

In general most mill supply waters contain a varying amount of hydroxides and carbonates, which makes them alkaline in character. The addition of alum to such a water will result in a reaction between the alum and the hydroxides and bicarbonates present forming a voluminous gelatinous precipitate or floc.

The amount of floc formed being in proportion to the amount of constituents in the water, the amount of alum added to react with them, and the concentration.

This reaction may be expressed in ionic form as follows:



If alum is dissolved in distilled water a clear and acid solution results. Upon the addition of alkali a floc formation will result (aluminum hydroxide), upon further addition of alkali the floc will dissolve into soluble aluminate. By the addition of alum to this final alkaline solution, the process may be reversed, forming a floc at intermediate pH values and again redissolving it at low pH values.

Actually, however, this reaction is more complicated, depending upon the degree of dilution. Under these conditions the composition of the floc will vary from aluminum hydroxide to a basic aluminum sulphate depending upon the amount of hydroxyl-ion present.

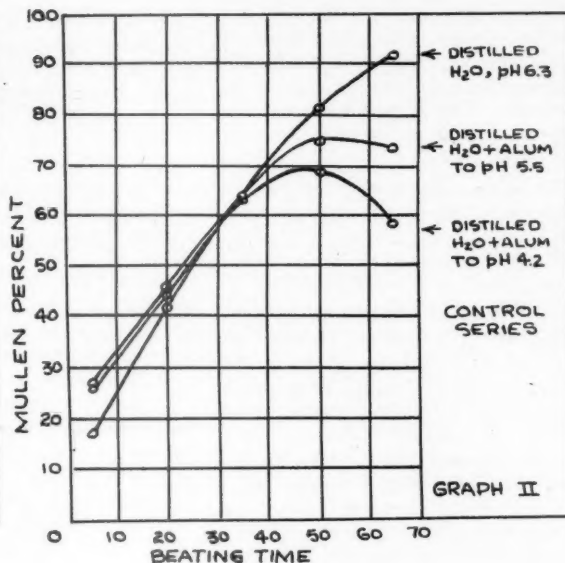
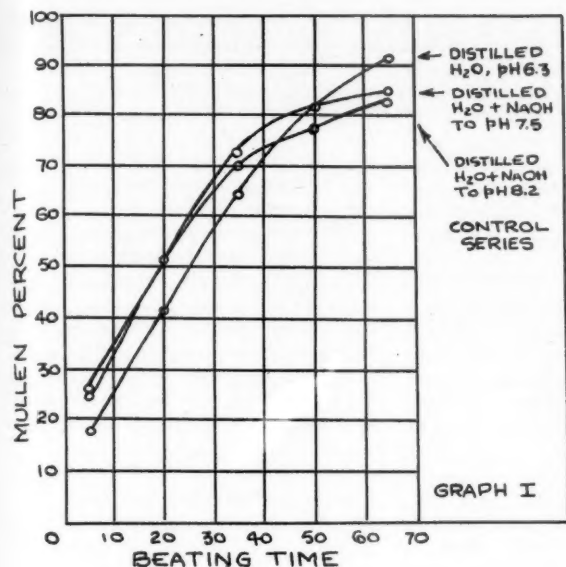
At high concentration the floc may form over as wide a range as pH 4.5 to 8.5. As dilution increases the range of floc formation will narrow, and at extreme dilution ultimately form at approximately pH 5.5 only, depending upon the particular water in question.

The presence of such a floc in a pulp and water suspension has been proven to have a definite effect upon sheet strength characteristics.

The presence of such flocculated material in a pulp and water suspension will decrease the strength (other than tear) of a sheet formed under such conditions.

Keller, Simmonds and Baird have reported that as the bicarbonate content of a water increases, thus ne-

*Assistant Chief Chemist, Fernstrom Paper Mills, Inc., Pomona, California. Presented at the Dinner Meeting sponsored by the Pacific Section of TAPPI, Heathman Hotel, Portland, Oregon, March 2, 1943. Entered in the Shibley Award Contest.



cessitating an increase in the amount of alum necessary to maintain a given pH, the amount of floc formed and consequently retained by the sheet increased. This increase in retained mineral content proportionately decreased the strength of the sheet. In this case zeolite softening was without effect inasmuch as the zeolite process merely replaces calcium and magnesium with sodium. The bicarbonate content remaining constant.

Thus strength loss in such a system may be due to flocculated material down to a pH range of approximately 4.5. Losses at below this range may be due to the acid radical.

At this point it appears that fur-

ther investigation is indicated regarding the possible effect of alum on floc on strength development of a pulp.

The Effect of Alum Floc on Pulp Strength Development

● The following experiments were conducted with a Pacific Coast unbleached sulphite of standard grade developed in the Valley Laboratory beater.

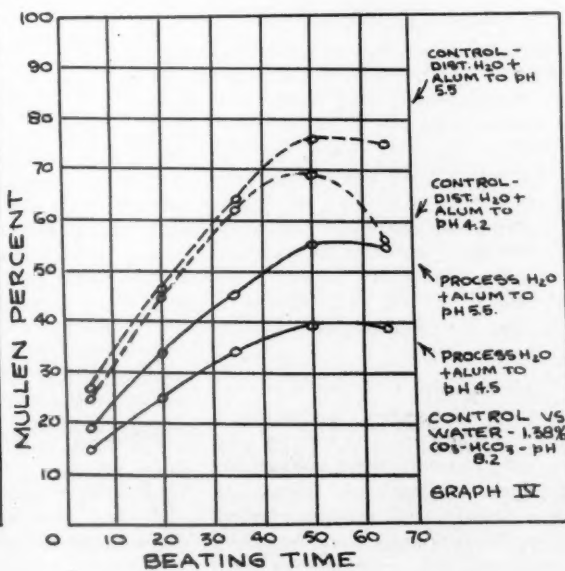
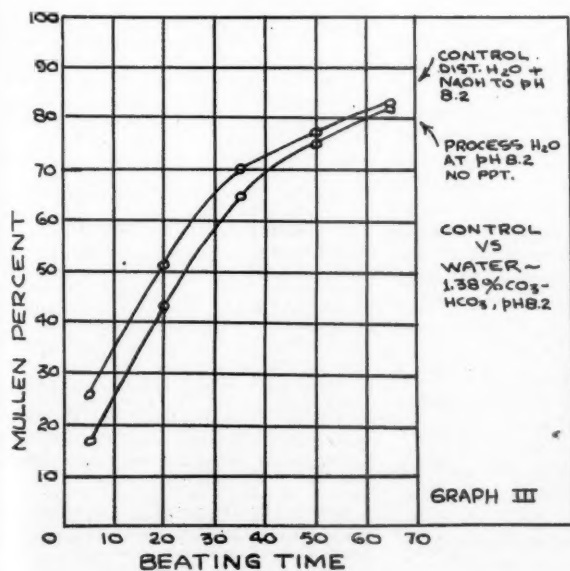
Deviations from T.A.P.P.I. standards of sheet making were made as follows in order to more closely approximate mill conditions. Twenty-pound handsheets were made on 80 mesh wire, with white water return in the sheet-mold.

The problem of investigating

alum floc effect in the beater is complicated, due to the double nature of the effect that may be obtained through the entire system. In other words one effect may be obtained in beating, and another effect, or altered effect, when the stock is diluted in the headbox before sheet formation.

In addition to this any action of the acid or hydroxyl radical alone on the strength development of a pulp must be taken into account.

In order to do this a series of control tests were made. Beater runs were made with distilled water adjusted to various degrees of acidity or alkalinity. These pulp suspensions contained no flocculated material. Beater runs were then made



with a constant supply of mill water to which varying amounts of alum were added to duplicate the hydrogen-ion concentrations of the controls. Flocculated material was present during the beating cycle of the latter series.

Thus any difference in strength is the result of the presence of alum floc and not the degree of acidity or alkalinity inasmuch as each run is compared to a control of equivalent acidity or alkalinity but without the presence of flocculated material.

Handsheets were made from the beaten stock in such a manner as to eliminate any effect due to alum floc in the second, or formation of a sheet, phase. Dilution was made with distilled water adjusted to a pH condition where the floc was redissolved in all cases, thereby insuring that any differences were due to differences in stock preparation and not due to precipitated material present in the formed sheet.

Control Series

● Graph I shows strength development in pure distilled water which had a pH of 6.3. At 65 minutes a maximum mullen of 91 per cent was obtained. The next run was made with distilled water to which sodium hydroxide was added to bring the pH to 7.5. In this case a mullen of 85 per cent was developed. Distilled water was next adjusted to pH 8.2 and a mullen of 82 per cent developed.

It is indicated that the presence of the hydroxyl-ion reduces the maximum strength development to some extent. It does, however, give a more rapid strength rise in the early stages of development.

Graph II shows the effect of the acid radical on pulp strength development. Beater runs were made in distilled water to which sufficient alum was added to result in a pH of 5.5 and 4.2. In comparing these values to a pure distilled water run it is seen that a maximum mullen of 75 per cent is obtained at a pH of 5.5 and a maximum mullen of 69 per cent at pH 4.2, as compared to a mullen of 91 per cent of pure distilled water.

Consequently it is apparent that the presence of the acid radical results in a greater decrease in developed strength than the alkali. Maximum strength is arrived at more rapidly and a more marked falling off is noticed after the maximum strength is reached.

Alum Floc Series

● Beater furnishes containing alum floc in varying degrees to compare with the foregoing control series are shown in graphs III and IV.

Water of high bicarbonate content (1.38%) and a pH of 8.2 was used, and alum added to duplicate the pH conditions of the controls. In this instance alum floc was formed.

Graph III shows the developed strength of a pulp in distilled water adjusted to pH 8.2 with sodium hydroxide, as compared to the same pulp developed in a supply of process water with an equivalent pH but high bicarbonate content. The mullen at 65 minutes is roughly identical.

Graph IV shows the pulp developed in process water adjusted to pH 5.5 and pH 4.5 with alum, as compared to distilled water controls adjusted to equal pH values but without the flocculated material present. From this it can be seen that as the amount of floc increases, strength development decreases. At a maximum flocculation point approximately 20 points in mullen being lost due to the presence of the precipitated material in the beating cycle.

Conclusions

● The problem of the effect of alum floc upon sheet characteristics can apparently be divided into several phases. The effect of (1) an alkaline or acid condition during preparation plus (2) the effect of any flocculated material formed. In addition to this (3) at the time of stock dilution, either at or before the headbox, another opportunity for floc formation and its effect on sheet strength presents itself.

The presence of alum floc in a water and pulp suspension during the strength development of the pulp will decrease strength development. The larger the amount of flocculated material present, the greater the decrease in strength. The presence of such a floc does, however, appear to increase the beating rate in some instances. In addition to this effect, the presence of alum floc at the time of sheet formation will even further decrease the resultant sheet strength.

Acid beating as compared to alkaline beating will give poorer strength development, but in many instances where unfavorable development is obtained some portion of this strength loss may be attributed to the presence of the floc formed by the addition of alum to waters high in hydroxides and bicarbonates.

Many mills have one pH condition during pulp treatment and another pH condition at the time of sheet formation. If waters high in hydroxides and carbonates are used, the addition of alum before beating may result in a strength loss due to two effects (1) acid beating and (2) the presence of alum floc.

When this stock reaches its dilution point at the headbox the opportunity for further floc formation may present itself, depending upon the closed nature of the system. If more floc is formed at this point, a further decrease in strength may be expected due to the retention of the floc in the sheet.

January Newsprint Production Down 25%

● Production in Canada during January, 1943, amounted to 233,544 tons and shipments to 215,016 tons, according to the News Print Service Bureau. Production in the United States was 69,792 tons and shipments 69,691 tons, making a total United States and Canadian newsprint production of 303,336 tons and shipments of 284,707 tons. During January, 13,625 tons of newsprint were made in Newfoundland, so that the North American production for the month amounted to 316,961 tons. Total production in January, 1942, was 425,154 tons. There was one more working day in January, 1942, than in January, 1943.

The Canadian mills produced 78,360 tons less in January, 1943, than in January, 1942, which was a decrease of twenty-five and one tenth per cent. The output in the United States was 14,836 tons or seventeen and five-tenths per cent less than in January, 1942, in Newfoundland production was 14,997 tons or fifty-two and four-tenths per cent less, making a total decrease of 108,193 tons, or twenty-five and four-tenths per cent less than in January, 1942.

Stocks of newsprint paper at the end of January were 110,514 tons at Canadian mills and 9,702 tons at United States mills, making a combined total of 120,216 tons compared with 101,587 tons on December 31, 1942, and 154,904 tons at the end of January, 1942. During the winter some tonnage is accumulating at points from which water shipments will later be made.

Everett Memorial Service For Sgt. Harold Baldwin

● Impressive memorial services were held recently in the time office yard of the Everett Pulp and Paper Company at Everett, Wash., for Sergeant Harold Baldwin, U. S. Army, whose death in Africa December 12 was reported by the war department.

There were hymns sung by a church choir and prayers. "Taps" was played by Gordon Hart, chief electrician of the plant. While this was done, William A. Killien, representing the employees, placed a gold star adjacent Sgt. Baldwin's name on the company honor roll.

Sgt. Baldwin had been employed at the plant for 12 years before entering the army. His mother, his widow and a child he had never seen, survive him.

Some Ideas on Increasing Plant Powerhouse Efficiency

by CLAUDE CALLAGHAN*

A COMPLETE discussion of powerhouse efficiency would be lengthy and involved. This paper shall be limited to a few of the major items materially affecting efficiencies and costs. No attempt will be made to show detailed mathematical formulae or cost accountability bearing on the subject. Consideration will be limited to equipment used in Pacific Coast plants.

A powerhouse and its equipment represent a very substantial investment. This investment varies with size or installed capacity, and can easily range from \$200,000 to well over \$1,000,000. Assume for the moment a capital investment of \$300,000 and a life expectancy of twenty years for the plant. If you extend the life of that plant by one year, through careful operation and maintenance, you have in effect saved \$15,000.

The monthly operating cost of a powerhouse, fuel, labor, repairs, and depreciation will be from \$10,000 to well over \$20,000. An increase of only two per cent in overall efficiency will produce a saving of from \$2,000 to \$5,000 a year.

A powerhouse may be divided into boiler room and engine room. Of the two parts, the boiler room has potentially the greater possibilities of effecting economies. The proper function of a boiler room is to furnish your plant with all its steam needs all the time. If there is plenty of boiler capacity this isn't too hard to do. To do it economically or to do it if boiler capacity is limited requires constant and careful attention and supervision.

Value of Accurate Records

- When starting on any program of cost reduction or building up of efficiency (which amounts to the same thing), it is most convenient and helpful to have operations records and a well defined system of cost accounting. It is much easier to note progress made when records are available and these records help determine the most as well as the least efficient portions of operations. Records are worse than useless unless they are accurate and reliable. The instruments used should be

Keeping records helps materially in carrying out any program for cost reduction. Many economies are possible in the boiler rooms of pulp and paper mills and some changes may be beneficial in engine rooms, too.

kept in first class operating condition and frequently checked for accuracy. The records should include power produced and power absorbed by plant auxiliaries.

Boiler room operations like most other operations depend ultimately upon human efforts. Results can be no better than the human efforts guiding them. Workmen are impressed and influenced by their working surroundings. Most highly efficient and reliable boiler rooms will be found clean and well lighted. Insofar as possible all boiler controls should be grouped and readily accessible. While not generally true, large boiler rooms can be found wherein the fireman literally tires himself out wading through rubbish and dodging poorly placed or idle equipment as he goes from one isolated control to another.

Before considering details of boiler room operation it might be of value to examine the overall steam demand by the plant on the boiler room. Very little seems to have been done about this, but it offers possibilities. Call it load dispatching. Carefully staggering of anticipated sudden loads, rescheduling of other loads, elimination of certain loads during otherwise heavy load periods can easily mean one less boiler in operation or can mean full steam pressure without dangerously and inefficiently overcrowding the boilers in operation.

An unexpected shutdown of a boiler or boilers can cause a loss in production amounting to hundreds of dollars. Carefully planned and prearranged boiler shutdown for repairs and inspection keep the outage time to a minimum and can often be so managed there is no production loss at all. A well planned system of boiler operation and maintenance will normally make it unnecessary to shut down boilers at any other than planned time.

Determining Boiler Outputs

- The functional operation of boilers is sometimes overlooked or at least seldom investigated fully. This is an individual plant problem and must be investigated under op-

erating conditions. Generally steam should be kept very close to a predetermined pressure. The less the steam pressure is allowed to vary, the better will be the efficiency. If the plant has more than one boiler the magnitude of load swings will determine the loadings on the individual boilers. It may be more efficient to operate some boilers with base load and take the swings with some other boilers, or it may be that all boilers should vary their output with load variations. It is the practice of many plants to carry all boilers on the line 24 hours a day that are required for peak load periods. Often this is most economical too, but not always. The difference between maximum and minimum load as well as rapidity of load increment will influence the choice of banking some boilers or carrying load on them at all times.

If the plant has steam driven prime movers it is well to determine the actual best pressure-temperature efficiency available for these prime movers. Often the best pressure-temperature for the prime movers is not the same as that of the boilers. In this case some compromise can be worked out which will help the overall efficiency of the plant to quite an extent.

After all practical combinations of functional operation have been investigated and evaluated, operational charts and guides can be made. These guides can be made to cover all normal and most abnormal operating conditions, thus relieving the operating personnel of intuitive decisions and allowing them to concentrate on their routine work.

When Air Wastes Fuel

- The biggest single item affecting the efficiency of the boiler room is the burning of fuel or fuels. A poor fireman can easily waste five to ten dollars worth of fuel on his shift, merely by careless performance of his job. Combustion control varies somewhat with different fuels. Wood refuse does not call for the same set of conditions as pulverized coal. Technique for gas firing varies

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from that of oil. Some general rules apply to the burning of all fuels. Air is required to burn any fuel. The more completely each particle of fuel is surrounded by air the more complete will be combustion. Excess air or insufficient air is wasteful. With some exceptions, too much air is less wasteful than too little. Preheated air will help increase boiler efficiency. Roughly, one per cent efficiency will be gained by each twenty five degree additional temperature of supply air. This does not refer to savings resulting from the use of air preheaters which lower the exit gas temperature and make additional economies by this waste heat recovery.

The subject of grates, dutch ovens and combustion chambers might be brought up at this point. Some preliminary investigations made a few years ago indicated that considerable improvement could be made in wood refuse firing by modifying the flat grate, cone shape fuel bed firing that is so generally used. This investigation covered efficiency of combustion, smoke elimination and grate life. Grate life was studied with high temperature air, both with and without water cooling.

Air leakage, that is, air entering the boiler setting at any point which does not combine with the fuel for combustion, tends to cool the heating surfaces and combustion areas. This cooling can lower the boiler efficiency by many per cent. It is felt by some that a small leakage in the hot areas of combustion is beneficial. That is, the loss in efficiency due to the leaks is more than offset by the increased life of the brick, which is supposed to result from the cooling effect of these leaks. One possible method of testing for leaks is to close the uptake damper while having a smoking fire.

Many Waste Steam On Atomizers

● Because of air leaks in the setting or too much combustion air that isn't mixed properly, care should be given to choosing the sampling points for flue gas analyses. Stratification of gases in the boiler passages can easily lead to erroneous data if the gases are not properly sampled.

Some plants find it necessary to burn oil from time to time in conjunction with their wood refuse in order to supply their steam demands. A recent survey covering some fifty plants where oil is burned occasionally revealed that a majority of these plants used too much steam on their atomizers, and too much combustion air. Most installations should be able to carry 12 to 13

per cent CO_2 when burning oil. If furnace volume is limited, it may be necessary to carry more excess air in order to shorten flame travel. When checking CO_2 for control purposes, especially in boilers that burn other fuels, it must be held in mind that there is probably excess air leakage present to make readings inaccurate.

Poor or leaky baffles will cause considerable loss of heat. Changes in boiler baffling to fit operating conditions of a particular boiler can often materially increase the boiler output and lower the exit temperatures. This may reduce breeching maintenance costs too.

Steam leaks waste a lot of fuel. These leaks occur in many places, whistle valves, blowoff valves, valve stems heater vents, flanges and other fittings. Over a period of time much steam can be lost. Not only do the leaks represent a waste, but are often a warning that more serious failure may be about to happen. Some of these leaks are hard to find unless actually looked for, and this is best accomplished by establishing some routine for that particular purpose.

Scale on Heat Transfer Surfaces

● Boiler heat transfer surfaces should be kept clean, both on the fire side and water side. An accumulation of soot on the fire side of boiler tubes is a pretty good insulator. (Soot as used here refers to unburned carbon, ashes, dirt, dust or other products of combustion). This coating of soot can drop the heat transfer as much as five per cent. Soot blowers, steam lances, water lances, air lances and mechanical scrapers are variously used to keep these deposits at a minimum. Different types of deposits may require different applications of cleaners and should be given study as an individual plant problem.

Scale on the water side of the boiler tubes is an insulator. It can cause as much as ten per cent loss in heat transfer. The loss will vary with the type and thickness of scale formed. Unlike soot, there is also the danger of overheating the metal, with the resultant loss of the tube if scale is allowed to accumulate. This danger increases and becomes more critical with higher boiler pressures, temperatures or ratings.

Prevention of scale from forming on the heat transfer surfaces of the boilers is a problem in practically every boiler room. Its study starts with the source of supply water and should include more than the boilers alone. Scale can form in open or closed heaters and economizers.

Corrosion of pipe lines should be included. Corrosion not only causes rapid deterioration of pipe (which is hard to replace right now) but may shorten the life of the boiler itself. Products of corrosion may also contribute to scale formation in the boilers.

Ordinarily in plants that are already built it would seem that the choice of a source of supply water is limited. This may be true in general but many plants could still change their supply source to their own betterment. In tidewater areas, some plants take water from a source that is frequently contaminated with salt water. Some plants take their water from deep wells whereas they could get a better water cheaper from a nearby stream. Some plants that take water from streams could get a better water by the judicious relocation of their intake. Other plants take water that is contaminated by sewage or waste products from mines, processing or manufacturing plants. The best water that can be had is that which is least contaminated by oil, sewage, or waste products and which contains the least amount of suspended matter and which has the least amount of scale forming solids.

Steam Sources for De-Aerating Heaters

● Boilers that operate at low temperature, low pressure and have a low rate of steam release may easily be kept free from scale by the simple application of the proper softening and sludge conditioning chemicals directly to the feedwater. This internal treatment will usually suffice and be the most economical as well.

On the other hand, if the plant has high temperature feedwater heaters and/or economizers — both of which are usually associated with high pressure boilers—it may not be practical to add softening chemicals to the feedwater. They should possibly be fed directly to the boilers. With high temperature water there is the added problem of preventing scale or corrosion from taking place in the economizer or heater.

The most economical source of steam for de-aerating heaters is "bled" steam from prime movers. Next best is exhaust steam from auxiliary equipment. Whether steam is available from either of these sources or not, it is still economical to use enough steam in the heater to raise the feedwater temperature to atmospheric boiling, thus driving off all oxygen from the water. Any

traces of oxygen remaining can then be removed chemically.

In addition to the supply water, return water should be checked for impurities. This return water is condensed steam and should be quite pure. Oil from various sources frequently finds its way into the condensate. Leaking surface condensers may pollute the condensate with circulating water. Products of corrosion from the steam and condensate lines are frequently found in condensate.

Oil is a potential trouble maker. A thin coating of oil on an otherwise clean tube will cause the tube to overheat and burn. Oil also causes foaming tendencies in the boiler and may make boiler water sludges abnormally sticky.

Steam Leakage

● The engine room portion of the power house does not have the possibilities of the boiler room for effecting economies. The efficiency of a steam driven prime mover depends upon three items over which control can be established. First is the incoming pressure temperature. The most economical pressure temperature is not necessarily that stamped on the name plate, and, as already mentioned this should be determined by actual operating tests. A drop of ten pounds in the steam pressure will increase the water rate one per cent or more. Similarly, a drop in total steam temperature (if it is superheated) will increase the water rate by one per cent.

Steam leakage between stages of prime movers materially affect their steam consumption. This can be corrected only when the machine is dismantled for inspection.

The exhaust pressure when condensers are used also affects steam consumption. When total back pressure is two inches of mercury or less, each one-tenth inch of back pressure will represent about one per cent change in water rate. Generally, the goal for operating vacuum is the highest that can be obtained. Pumping costs of circulating water may be a limiting factor.

To show the possibilities of a program of improving power house efficiencies along the outlines just presented, let me cite an actual case which has recently taken place in this general area. This plant has operated for a number of years, and its total average output was quite well established. The conditions under which this plant operates are such that its total output can be absorbed, and its actual output is limited only by its ability to produce. Not long ago a program of improve-

Housewives to Get Back Their Sliced Bread But Ban on More Than One Wrapper Stands

● When sliced bread was given back to restaurateurs and housewives of the United States on March 8, the fanfare of publicity that greeted this news event in the daily press overlooked one important fact—

That section of Secretary of Agriculture Wickard's now famous Food Distribution Order No. 1 of December 30—popularly known as the no-slicing order—which applied to the waxed paper covering on bread still stands.

In short, bread still can have only one wrapper and spokesmen for the bakers' organizations say this is hard on them. Sliced bread, prior to the no-slicing era, had almost universally been given two wraps of paper.

The Wickard part of the no-slicing order that still is in effect states that bread can have no inserts, outserts or end labels or double laps except where such are absolutely required for identification and in such cases these can be only three inches wide.

Representatives of the waxed paper industry said most bakers are using one thickness of 37-pound opaque paper. Thirty pound transparent paper was adequate in the no-slicing era and when double wraps could be used.

Many reasons were given for the original order. To save bread-knives (therefore steel) and repairs of knives. To save wax. To save paper. To save labor. To all these arguments there were many

dissenters.

Who Think It Up?

● Reporters in Washington couldn't find any official departments or bakers' industry leaders willing to take responsibility for thinking up the order—especially after the outcry from housewives reached their ears.

But the record shows the food industry branch of WPB had an idea last November that bakery economies might save paper, wax and steel. Just about that time this food branch was severed from WPB and handed over to Secretary Wickard. Next came action on December 10 of the Baking Industry advisory council approving elimination of slicing to offset higher flour prices. The WPB, OPA, Federal Trade Commission and Agriculture Department held a joint conference. On December 30 the order was issued.

Housewives' protests and declining consumption of bread were reasons given in some official quarters for revocation of part of the order. Considerable waste of printing plates resulted from the changes as bakers had to change their labels.

Spokesmen for the waxed paper industry say the paper and wax situation is no better than it was before. So the restrictions continue on bread wrappers.

Meanwhile, in Canada, a ban on slicing of bread by bakers, which went into effect sixteen months ago, still stands.

ment was started. There has been no change in personnel or methods of operation. First, the water side of the boilers was cleaned. Second, air leakage in the boiler settings was stopped. Third, condenser performance on the turbine was improved. And fourth, steam leaks were stopped. The net result was fully a 20 per cent increase in power output, and this without the addition of any equipment.

All plants do not have such opportunities. As a matter of record many plants are so operated that very little if any further economies can be made with the equipment they have. Some plants operate continuously well above the guaranteed performance of their equipment. A study of such plants will reveal they are well set up for such performance. They have a well integrated system of authority and operate under definite rules of procedure. Outages are practically all planned, preventive maintenance is practiced, and records of operation are carefully logged and checked.

Most any power house whose existence can be justified can also from a cost standpoint justify a careful system of operation and control.

Thus operated, they can be depended upon to give in return a maximum of safety, service and economy.



WALTER DeLONG, Vice President, St. Regis Paper Co., Kraft Pulp Division, Tacoma, was elected a Director of the company at a New York Board meeting March 16, Roy K. Ferguson, President, announced.

Niles Anderson Joins Marathon Organization

● Niles Anderson, mill manager of the St. Regis Paper Company, Kraft Pulp Division, Tacoma, until last November when the plant was shut down by the War Production Board due to the shortage of logs, has joined the organization of the Marathon Paper Mills Company of Wisconsin.

He will make his headquarters at Ontonagon, Michigan, where he will have charge of operations at the Ontonagon Fibre Corporation, a 100-tons per day kraft pulp and board mill. In addition to this responsibility he will supervise development work.

Mr. and Mrs. Anderson, accompanied by their two daughters Laurel and Jean, left Tacoma March 17th by auto after selling their home.

Mr. Anderson joined the St. Regis organization in September, 1936, when the remodeling program was nearing completion and served as assistant superintendent of the bleached kraft pulp mill until January, 1940, when he became general superintendent. Early in 1942 he was made mill manager.

Niles Anderson has had extensive experience in the pulp industry on the Pacific Coast since graduating from the College of Forestry, University of Washington, Seattle. Upon his graduation he worked on the construction of the Fdialgo Pulp Manufacturing Company's un-

bleached sulphite pulp mill at Anacortes, Washington, which later became a part of the Puget Sound Pulp & Timber Company and still later, a subsidiary of the Scott Paper Company. Before leaving Anacortes for Bellingham he became assistant pulp superintendent. At Bellingham Mr. Anderson served as sulphite superintendent of the San Juan Pulp Manufacturing Co., now the Puget Sound Pulp & Timber Company, supervised the installation of equipment in the new plant and started it up.

In 1927 Mr. Anderson went to Ocean Falls, B. C., as sulphite superintendent for Pacific Mills, Limited. His work there included supervision over both the sulphite and sulphate pulp mills. After more than five years at Ocean Falls he was transferred to Camas as night sulphite superintendent of the Crown Willamette Paper Company's mill.

After a short time at Camas Mr. Anderson became sulphite superintendent for the Columbia River Paper Mills at Vancouver, Washington. He was at Columbia River for more than three years and had supervision over the groundwood plant as well as of the sulphite production. It was from this position he moved to St. Regis in September, 1936.

Mr. Anderson has been active in

the American Pulp & Paper Mill Superintendents Association, serving in 1941 as chairman of the Pacific Coast Division and at the present time he is fourth vice president of the national organization.

Longview Fibre to Make Victory Container Board

● H. L. Wollenberg, president of the Longview Fibre Company, recently returned to his San Francisco offices after a stay of several weeks at the mill, Longview, Wash., where preparations are being completed for the production of fiber board for the manufacture of V-Containers under War Production Board orders.

Problems of manufacture are faced in the production of Style V-1 100-point boxes, testing 750 dry and 500 wet, and Style V-2 90-point boxes testing 550 dry and 500 wet, both of which require snug fitting sleeves.

Specifications provide that "the sleeve shall closely fit the box over which it is to be placed, covering the top and bottom flaps and both ends." Devising ways and means for rapidly placing the sleeves on boxes so as to maintain peak production schedules is a trick now taxing the ingenuity of production experts.

Style V-3, a 90-point box testing 450 dry and 150 wet, is less complicated, since sleeves are not required, and Style 4-C is a common corrugated box testing 270, of which many millions were turned out by Longview Fibre Co. last year.

C. J. Bastedo, sales manager of the company, declared that 25 per cent of the company's output will be devoted to WPB orders beginning April 1, test runs having proved highly successful except for the yet unsolved problem of finding a fast and efficient method for installing the sleeves.

Designed to serve the armed forces and lease-land, V-Containers will replace scarce wood for the shipment of munitions and supplies.

Army's Packaging Problems Discussed at TAPPI Session

E. P. Wood, technical director, and Ray Hatch, research director, of the Pulp Division of the Weyerhaeuser Timber Company at Longview, have returned from trips to the East. They both attended the meeting of National TAPPI in New York in Mid-February and had some personal observations to make.

Dr. W. F. Holzer, in charge of the Experimental Pulping Division of the Central Technical Department of the Crown Zellerbach Corporation at Camas, Wash., also attended the TAPPI meeting and spent the early part of March visiting southern paper mills and the Institute of Pulp and Paper Chemistry at Appleton, Wis.

The attendance at the New York TAPPI session was good considering the times and conditions of travel, said Mr. Wood, who is chairman of the Pacific section of TAPPI. He also observed that there seemed a predominance of interest in the more immediate economic problems confronting the industry for the coming year. These matters were covered

in general sessions on production schedules and similar subjects.

Officers of the U. S. Army were present and active. These men were forceful and specific in laying their problems of getting the parts, food, and equipment to the troops in the field in a shape which make their fullest use possible. There is little point, these officials pointed out, in making a commodity to careful specifications and storing and shipping it, only to find that it has not remained in the condition in which it left the factory or place of preparation.

Mr. Hatch said the New York discussions stressed the war effort, the packaging problem and the substitution of paper for critical materials used in the past.

Commenting on the latter point, he said that as a result of substitution during this period of emergency, a carry-over into peace times will occur. It will probably be less extensive than in wartime but the development of paper products for new uses will no doubt find a permanent place in some markets, he said.



NILES ANDERSON, In Charge of Operations at Ontonagon



No Compromise

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Rayonier is now producing pulp
in greater volume than ever
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Rayonier Man Wins Award For Safety Work

● John G. Pearson, assistant saw filer in the log breakdown plant of Rayonier Incorporated, Grays Harbor Division, Hoquiam, Wash., has won national honors as a "Safety Ace" in a countrywide contest conducted by the War Production Fund to Conserve Manpower.

This fund was established at the suggestion of President Roosevelt in an attempt to curb the increasing number of injuries to war workers on and off the job. Nearly every important industry in the nation, including sawmills and pulp and paper mills of the West, have contributed and the fund is being used under direction of the National Safety Council.

There is only one winner each week of the "Safety Ace" award, announced on the radio program "Men, Machines and Victory" broadcast by the NBC blue network Friday evenings. So Mr. Pearson, in winning the award, is in a select group of Safety Aces." He was the February 19th winner.

Qualifications for the award are (1) recognizing an accident hazard and designing a corrective measure, (2) being responsible for a safety idea or device that actually has reduced accidents and (3) performing

John G. Pearson of the Grays Harbor Division awarded \$100 War Bond as "Safety Ace" by the War Production Fund to Conserve Manpower in recognition of service to his country and to his fellow employees.

some similar distinctive service in the field of accident prevention beyond the ordinary call of duty. Contestants are nominated by their employers.

Mr. Pearson is 39, a Swedish-born naturalized citizen, is married and has two children. He has been employed by Rayonier Incorporated since December, 1933.

Since 1935 he has been a member of the Employees Safety Committee at the Hoquiam plant. In the past ten months he has made 17 safety suggestions, nine of which were to eliminate and reduce as far as possible unsafe working practices and eight of which were to eliminate physical hazards. All but one have been put into practice. Those are a lot of suggestions from one man, but his fellow employees attest to the fact that he always makes them in such a friendly way that he quickly enlists their cooperation.

Wood mills are considered among the most hazardous departments in the pulp and paper industry and his

employers give Mr. Pearson a large degree of credit for keeping the Hoquiam plant's frequency and severity rates at low levels.

Mr. Pearson has completed a standard industrial safety engineering course at the University of Washington and an advanced course at the Oregon State College, holding certificates from both schools.

In addition to being named a "Safety Ace," in recognition of services to his fellow employees and to his country, Mr. Pearson was given a \$100 bond by the War Production Fund to Conserve Manpower.

Flathead Plans to Build Mill After the War

● The Flathead Pulp & Paper Company, Polson, Montana, which proposes to build a 100 tons per day sulphite pulp mill and a 50 tons per day paper mill, recently purchased a sawmill at Polson and is planning to improve it as a basis for working into pulp and paper production after the war.

In a statement made early in March to PACIFIC PULP & PAPER INDUSTRY, B. B. Hamilton, president of the company, said, "We plan to build up and improve the present sawmill by adding a band mill for the head rig. We also plan to install a dry kiln and perhaps a shingle machine of sufficient size to take care of our own area. Our next step will be to develop plywood or a ground wood mill whichever, after further survey, seems the most feasible at the present time. Used machine is available for both, we have found.

"The pulp mill is to be developed immediately after the war, at which time men will be returning from the service and machinery will again be available. This will also allow the returning soldiers of this area to have a chance for employment for a long time to come."

L. A. DeGuere of Wisconsin Rapids, Wisconsin, pulp and paper mill engineer, prepared the plans for the sulphite pulp mill after making a survey for the company. Arranging the financing is Tom G. Taylor, well known in the Pacific Northwest for his part in financing several mills more than a decade ago.

Evan Wood Passes The Cigars

● Evan Wood, personnel advisor, Everett Mill, Pulp Division Weyerhaeuser Timber Company, was passing cigars and candy, March 4th, upon the birth of a 6½ pound daughter. The young lady was named Sarah Robina.



ON THE JOB >>> Assistant Saw Filer of the Grays Harbor Division, Rayonier Incorporated, Hoquiam, JOHN G. PEARSON, honored by the War Production Fund to Conserve Manpower as a "Safety Ace."

In the past 10 months he has made 17 safety suggestions and 16 of these are now in effect at the Hoquiam mill.

WRAPPINGS AND CONTAINERS MADE MOISTURE-VAPOR RESISTANT

with ECONOMICAL

Cyanamid Laminating Waxes

UNFAIR TO
MOISTURE-VAPOR
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When one thinks of moisture-vapor resistance it usually brings to mind the utilization of a coating substance to retard the penetration of moisture into wrapping or cartoning materials. But coatings that are flexible even at ordinary temperatures, low enough in cost, non-tacky, as well as providing a reasonably satisfactory resistance to moisture-vapor transfer, are not generally available at the present time.

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While too tacky or dark in color to be satisfactory as a coating material,

BENOWAX[®] when used as a laminating substance between two or multiple surfaces of paper or board effectively prevents the transfer of moisture-vapor without impairing the flexibility of the wrapping or cartoning material.

The different grades of BENOWAX are straight amorphous petroleum waxes, unadulterated by the addition of any modifying ingredients. Available in colors ranging from amber to black, and melting points from 140° F. to 175° F., the various grades of BENOWAX afford a broad choice to suit the user's requirements.

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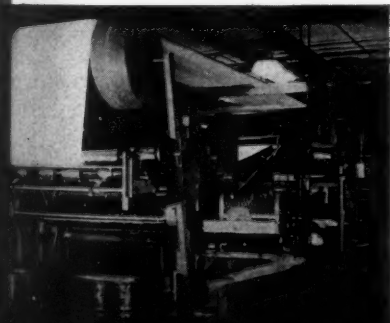
Papers laminated with the various grades of BENOWAX have been exhaustively tested by Cyanamid paper chemists and the results have been substantiated by users. This has provided data of timely interest for the manufacturer confronted with the moisture-vapor problem. Outstanding among these are the following facts concerning the characteristics of BENOWAX:

1. The moisture-vapor resistance of BENOWAX compares favorably with many films ordinarily considered moisture-vapor proof.
2. It provides substantial grease and oil resistance.
3. It exhibits good pliability, fair to strong adhesive power, depending upon the grade.
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5. It is low in cost (a fraction of that for most materials that have been used for rendering paper moisture-vapor resistant).

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In using BENOWAX for laminating, the material is simply heated to the proper temperature and applied to the papers or boards, which are then combined on suitable equipment. No heat curing or drying operation is required; the laminated product is merely allowed to cool.

Your Cyanamid representative will be glad to discuss these and other specific applications with you . . . make recommendations on grades of BENOWAX to meet your needs. Or, you may write:



One type of continuous laminating machine, with trimmer and sheeter, being used for laminating paper to boxboard with BENOWAX.



BENOWAX laminated wrappings and cartons enable manufacturers to step in and replace certain metals and other critical materials formerly used for many special

types of product packaging. Pastry, tobacco, cereals, coffee, dehydrated foods, are among the many products effectively packaged with BENOWAX laminated stocks.

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Acid Making In the Sulphite Pulp Industry

by A. H. LUNDBERG*

CHAPTER I--Continued

IX. Solubility of Sulphur Dioxide in Water

A. The "Handbook of Chemistry and Physics," Twenty-Fifth Edition, gives the data about solubility of SO₂ in water given in Table XIII and Chart VII.

There is a slight difference in these values as compared to the ones in the International Critical Tables (See Table XVI), but they agree very well with values obtained by the use of the equation proposed by Dr. W. Humm⁽¹⁾.

$$X = \frac{0.03 \times K \times P}{1.0363^t}$$

where X = Solubility of SO₂ in Water (Lbs. SO₂ in 100 Lbs. Water).

K = Partial pressure of SO₂ ÷ Total pressure.

P = Total pressure in mm. Hg.

t = Temperature of water in degrees Centigrade.

The expression 1.0363^t is given in Table XIV.

For comparison, results obtained from Dr. Humm's equation are also plotted on Chart VII.

It should be noted that the equation gives almost identical results with Table XIII at temperatures usually encountered in raw acid manufacture at atmospheric pressure.

The equation may therefore for temperatures below 50°C. be rewritten to read:—

$$X = \frac{0.03 \times 760}{1.0363^t} \times \frac{\text{Volume Per Cent SO}_2}{100}$$

B. Water Vapor Pressure and other Properties are given in Table XV.

C. Solubility of Sulphur Dioxide in water at various temperature and pressures is given on Chart VIII.

D. Partial Pressures H₂O and SO₂ in mm. Hg. over Aqueous Solutions of Sulphur Dioxide, taken from "Chemical Engineers' Handbook," Second Edition, are given in Table XVI.

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E. Chart IX is similar to Keuffel and Esser Co. Chart No. 358-11. It is, however, somewhat modified to agree with the higher values of saturation given in Table XIII.

F. Maximum Strength of Solution in lbs. SO₂ per 100 lbs. water from various gas strengths and at different temperatures is given in Table XVII.

X. Solubility of Sulphur Dioxide in Calcium Bisulphite Solutions

A. Dr. W. Humm has made a very interesting study of the equilibrium between Sulphur Dioxide and Calcium Oxide. His work⁽¹⁾ is herewith highly recommended to the reader. Greater part of the following is based on Dr. Humm's findings.

For his experiments Dr. Humm used a 400 cc. bottle placed in a waterbath. The temperature of the water was thermostatically controlled. The Sulphur Dioxide

The tables and charts in Mr. Lundberg's series of articles which began in the January, 1943, number, will give sulphite acid makers and superintendents practical working information on the manufacture of acid.

The technical data in Chapter I provides the basis for Chapter II which will discuss the use of this data in sulphite pulp mill operation.

was produced from C. P. Sodium Bisulphite (NaHSO₃) and C. P. Hydrochloric Acid (HCl). The gas thus produced was dried and cleaned in concentrated sulphuric acid before it was introduced continuously into a stirred slurry of pure calcium carbonate. The products, Calcium Bisulphite and excess SO₂ were analyzed, both volumetric and gravimetric, for their content of Total SO₂ and Lime. From the latter was calculated the theoretical amount of combined SO₂ and as differential free SO₂.

B. The maximum solubility of lime in Sulphur Dioxide at varying temperatures was first determined. Into 40 gr. pure calcium carbonate (22.4 gr. CaO) in 200 cc. of distilled water the SO₂ gas, prepared as mentioned above, was introduced. The undissolved material was allowed to settle and the clear solution analyzed for lime and SO₂. The solution obtained at 0°C. and was heated under continuous stirring and introduction of SO₂ gas.

The analyses of the clear solution at various temperatures are given in Table XVIII.

C. The second experiment was to determine the absorption of SO₂ in pre-determined strengths of Ca-Bisulphite solutions. SO₂ gas, prepared in same manner as in previous experiments, was introduced continuously into prepared clear solutions of Ca-Bisulphite. The results are tabulated in Table XIX and shown graphically on Chart X.

Chart X is interesting. The line A-D gives the necessary percentage SO₂ for a certain lime content as Bisulphite. The area A-B-C-D-A gives the maximum solubility of SO₂ at a given temperature and lime content. The line A-C is the border line at which Ca-Monosulphite will appear or the temperature at which the maximum lime content is reached.

Conclusions:—

1. Increased lime content results in decreased True Free content.
2. Increased temperature results in decreased lime content and also in
3. the solubility of Ca-Bisulphite.
4. A certain amount of true free SO₂ is necessary to keep Bisulphite in solution.

The amount increases with the lime content.

D. Similar experiments were conducted by Dr. Humm with weaker gases. In Table XX the maximum solu-

*Seattle, Washington. Mr. Lundberg is Western Manager, G. D. Jenssen Company, New York City.

E. Table XXI gives the solubility of SO_2 in different strength Ca-Bisulphite solutions at different temperatures using a SO_2 gas of 76 mm. Hg. partial pressure.

Temperature °C.	°F.	Total SO ₂ %	Combined SO ₂ %	True Free SO ₂ %
0	32.0	24.21	7.87	8.47
6	42.8	21.73	7.58	6.57
10	50.0	20.58	7.46	5.66
20	68.0	18.76	7.33	4.10
30	86.0	16.31	6.97	2.37
40	104.0	14.69	6.58	1.53

°C.	°F.	Total SO ₂ %	Combined SO ₂ %	True Free SO ₂ %
0	32.0	14.94	6.71	1.52
5	41.0	14.34	6.53	1.28
10	50.0	13.87	6.40	1.07
15	59.0	12.91	6.00	0.91
20	68.0	12.06	5.64	0.78
22	71.6	11.73	5.50	0.73
24	75.2	11.51	5.40	0.71
26	78.8	11.32	5.31	0.70
28	82.4	11.10	5.21	0.68
30	86.0	10.87	5.10	0.67

The Weight of Sulphur Dioxide (SO₂) Gas In Lbs. Dissolved in 100 Lbs. Water When the Total Pressure (i.e. The Sum of the Partial Pressure of the Gas and the Aqueous Tension at the Given Temperature) Is 760 MM. HG.

Temp.		Lbs. SO ₂ in 100 lbs. Water	Temp.		Lbs. SO ₂ in 100 lbs. Water	Temp.		Lbs. SO ₂ in 100 lbs. Water
°C.	°F.		°C.	°F.		°C.	°F.	
0	32.0	22.83	17	62.6	12.59	25	77.0	9.41
10	50.0	16.21	18	64.4	12.14	26	78.8	9.06
11	51.8	15.64	19	66.2	11.70	27	80.6	8.73
12	53.6	15.09	20	68.0	11.28	28	82.4	8.42
13	55.4	14.56	21	69.8	10.88	29	84.2	8.10
14	57.2	14.04	22	71.6	10.50	30	86.0	7.80
15	59.0	13.54	23	73.4	10.12	35	95.0	6.47
16	60.8	13.05	24	75.2	9.76	40	104.0	5.41

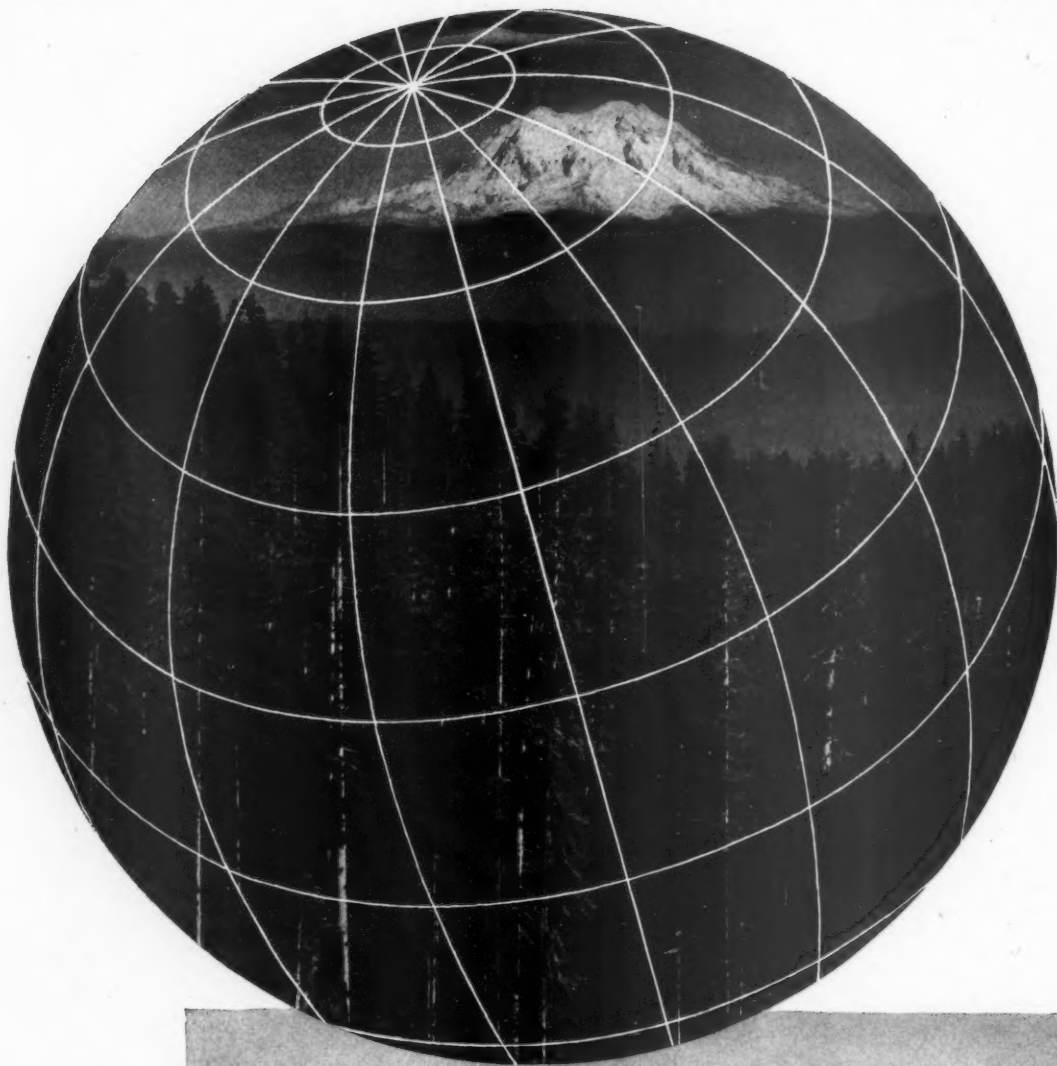
WATER VAPOR PRESSURE AND OTHER PROPERTIES

Temp.		Absolute Pressure			Gauge Pressure	Heat of Liquid		Heat of Vaporization	
C.	F.	Mm. Hg.	Inches Hg.	Sq. Inch	Lbs.	Calories per Kg.	B.T.U. per lb.	Calories per Kg.	B.T.U. per lb.
0	32	4.6	0.18	0.0886	—	0.00	0.0	595.4	1071.7
10	50	9.2	0.36	0.1780	—	10.06	18.1	590.2	1062.3
20	68	17.5	0.69	0.3386	—	20.06	36.1	584.9	1052.8
30	86	31.7	1.25	0.6132	—	30.04	54.1	579.6	1043.3
40	104	55.1	2.18	1.0661	—	40.02	72.0	574.2	1033.5
50	122	92.3	3.64	1.7849	—	49.99	90.0	568.4	1023.2
60	140	149.2	5.88	2.885	—	59.97	108.0	562.8	1013.1
70	158	233.5	9.20	4.516	—	69.98	126.0	556.9	1002.5
80	176	355.1	13.99	6.867	—	80.01	144.0	551.1	991.9
90	194	525.8	20.70	10.167	—	90.07	162.1	544.9	980.9
100	212	760.0	29.92	14.697	0.0	100.2	180.3	538.7	969.7
110	230	1074.5	46.26	20.777	6.1	110.3	198.5	532.3	958.1
120	248	1488.9	58.63	28.792	14.1	120.4	216.7	525.6	946.0
130	266	2025.6	79.82	39.17	24.5	130.6	235.1	518.6	933.6
140	284	2709.5	107.05	52.39	37.7	140.8	253.4	511.5	920.7
150	302	3568.7	140.05	69.01	54.3	151.0	271.9	504.1	907.4

Data from "Handbook of Chemistry and Physics," Twenty-fifth Edition.

1 Atmosphere = 760 mm. Hg.
= 29.92 inches Hg.
1 Lb. Pressure = 14.697 lbs. Absolute Pressure
= 2.035 inches Hg.

1 Inch Hg. Pressure= 0.492 lbs. Pressure
1 Mm. Hg. Pressure= 0.0394 inches Hg.



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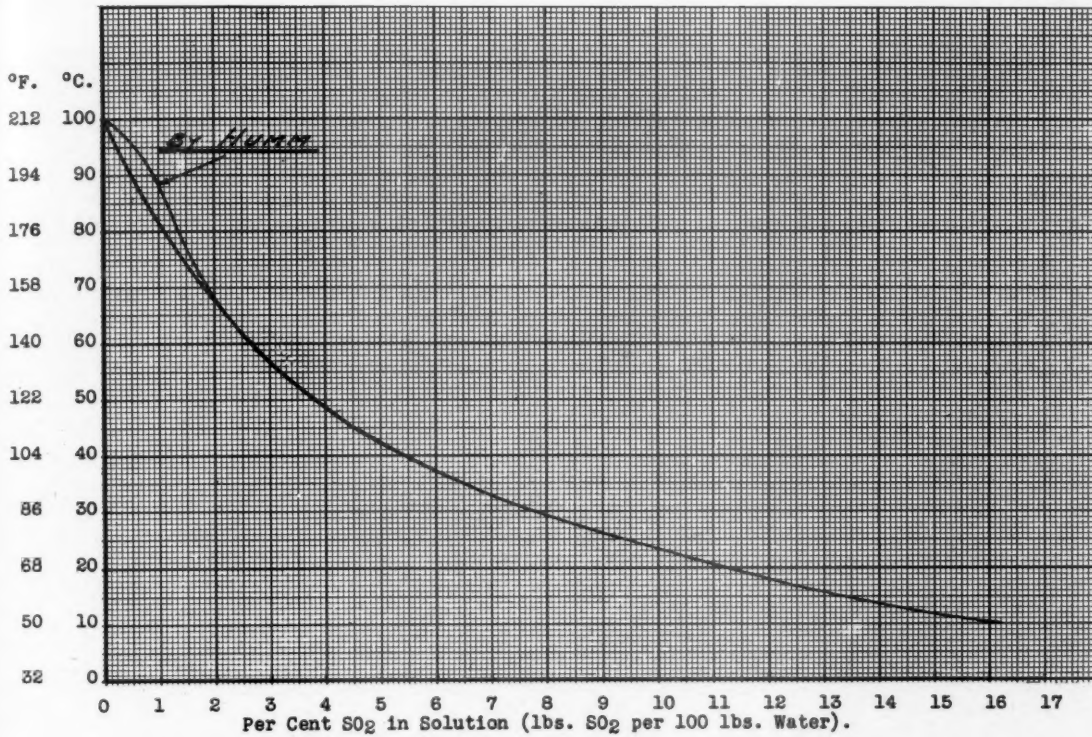


Chart VII. Solubility of SO_2 in Water at various Temperatures.

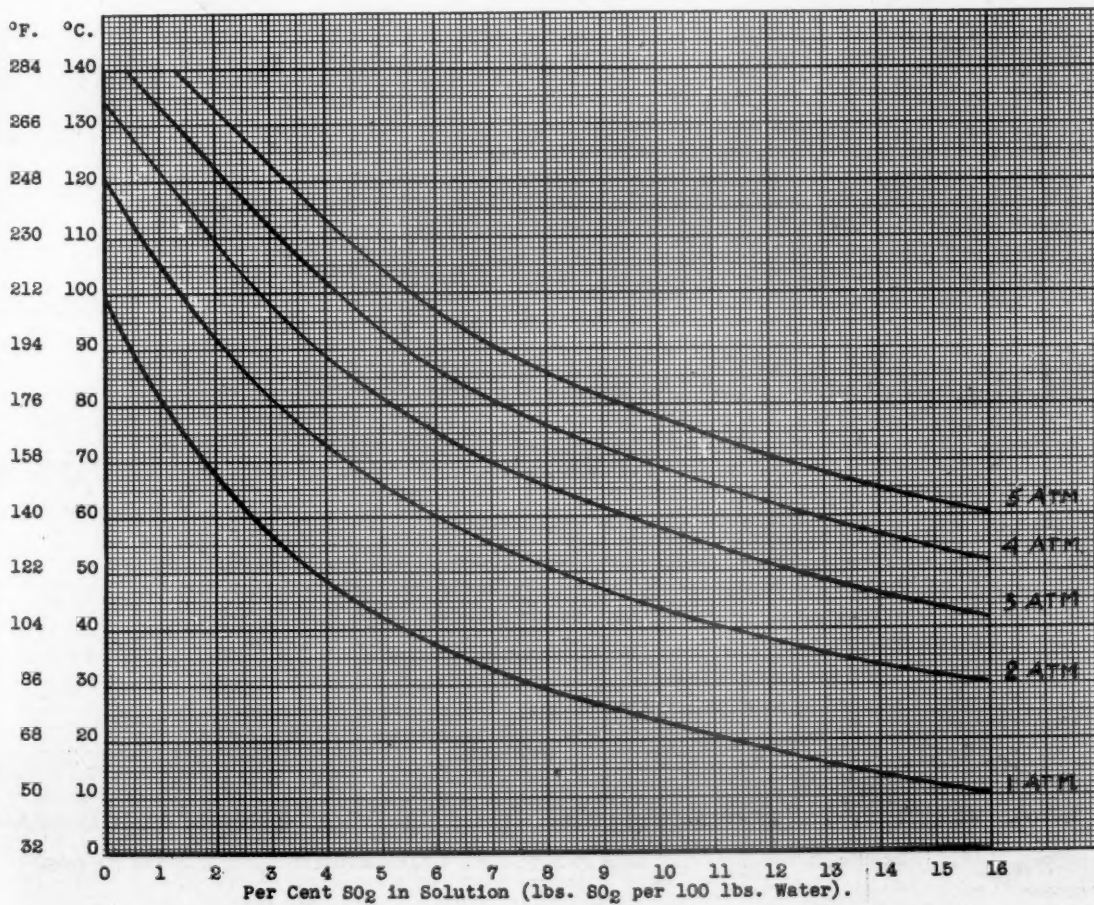


Chart VIII. Solubility of SO_2 in Water at various Temperatures and Pressures.



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TABLE XVII

Strength of Solution from Various Gas Strengths at Atmospheric Pressure

Temp.		Saturatio ⁿ	Volume Per Cent SO ₂ Gas Strength											
°C.	°F.	% SO ₂	100	80	60	40	20	18	16	14	12	10	8	6
0	32.0	99.4	22.8	18.35	13.76	9.17	4.59	4.13	3.67	3.21	2.75	2.29	1.84	1.38
2	35.6	99.3	21.2	17.07	12.80	8.54	4.27	3.84	3.41	2.99	2.56	2.13	1.71	1.28
4	39.2	99.2	19.7	15.89	11.92	7.94	3.97	3.57	3.18	2.78	2.38	1.99	1.59	1.19
6	42.8	99.1	18.4	14.86	11.14	7.43	3.71	3.34	2.97	2.60	2.23	1.86	1.49	1.11
8	46.4	99.0	17.1	13.82	10.36	6.91	3.45	3.11	2.76	2.42	2.07	1.73	1.38	1.04
10	50.0	98.8	16.2	13.12	9.84	6.56	3.28	2.95	2.62	2.30	1.97	1.64	1.31	0.98
12	53.6	98.6	15.1	12.24	9.18	6.12	3.06	2.75	2.45	2.14	1.84	1.53	1.22	0.92
14	57.2	98.4	14.0	11.38	8.54	5.69	2.85	2.56	2.28	1.99	1.71	1.42	1.14	0.85
16	60.8	98.2	13.0	10.59	7.94	5.30	2.65	2.38	2.12	1.85	1.59	1.32	1.06	0.79
18	64.4	98.0	12.1	9.91	7.43	4.96	2.48	2.23	1.98	1.73	1.49	1.24	0.99	0.74
20	68.0	97.8	11.3	9.22	6.92	4.61	2.31	2.08	1.84	1.61	1.39	1.15	0.92	0.69
22	71.6	97.6	10.5	8.61	6.46	4.30	2.15	1.94	1.72	1.51	1.29	1.08	0.86	0.65
24	75.2	97.2	9.8	8.03	6.02	4.02	2.01	1.81	1.61	1.41	1.20	1.00	0.80	0.60
26	78.8	96.8	9.1	7.49	5.62	3.74	1.87	1.68	1.50	1.31	1.12	0.94	0.75	0.56
28	82.4	96.4	8.4	6.98	5.14	3.49	1.75	1.57	1.39	1.22	1.05	0.87	0.70	0.51
30	86.0	95.9	7.8	6.50	4.88	3.25	1.63	1.46	1.30	1.14	0.98	0.81	0.65	0.49
32	89.6	95.4	7.2	6.04	4.53	3.02	1.51	1.36	1.21	1.06	0.91	0.76	0.60	0.45
34	93.2	94.8	6.7	5.66	4.24	2.83	1.41	1.27	1.13	0.99	0.85	0.71	0.57	0.42
36	96.8	94.2	6.3	5.35	4.01	2.68	1.34	1.20	1.07	0.94	0.80	0.67	0.54	0.40
38	100.4	93.6	5.8	4.96	3.72	2.48	1.22	1.12	0.99	0.87	0.74	0.62	0.50	0.37
40	104.0	92.8	5.4	4.66	3.50	2.33	1.17	1.05	0.93	0.82	0.70	0.58	0.47	0.35
42	107.6	92.0	5.2	4.52	3.39	2.26	1.13	1.02	0.90	0.79	0.68	0.57	0.45	0.34
44	111.2	91.2	4.9	4.30	3.22	2.15	1.07	0.97	0.86	0.75	0.64	0.54	0.43	0.32
46	114.8	90.2	4.6	4.08	3.06	2.04	1.02	0.92	0.82	0.71	0.61	0.51	0.41	0.31
48	118.4	89.2	4.3	3.86	2.89	1.93	0.96	0.87	0.77	0.67	0.58	0.48	0.39	0.29
50	122	88.0	3.8	3.46	2.59	1.73	0.86	0.78	0.69	0.60	0.52	0.43	0.34	0.26
60	140	80.4	2.7	2.69	2.02	1.34	0.67	0.60	0.54	0.47	0.40	0.34	0.27	0.20
70	158	69.4	1.8	1.80	1.55	1.04	0.52	0.47	0.41	0.36	0.31	0.26	0.21	0.16
80	176	53.3	1.1	1.10	1.10	0.82	0.41	0.37	0.33	0.29	0.25	0.21	0.16	0.12
90	194	30.8	0.5	0.50	0.50	0.50	0.32	0.29	0.26	0.23	0.19	0.16	0.13	0.09
100	212													

TABLE XIX

SO₂ — Partial Pressure 760 mm. Hg.

		%	%	%	%	%
Combined SO ₂		0.61	1.21	2.47	3.45	5.71
Total SO ₂ at						
°C.	°F.					
0	32.0	20.52	19.77	19.32	19.61	21.39
6	42.8	17.10	16.78	16.93	17.50	19.42
10	50.0	14.67	14.55	15.01	15.90	18.21
20	68.0	11.35	11.44	12.25	13.37	16.20
30	86.0	8.04	8.42	9.61	10.84	14.39
40	104.0	5.81	6.43	8.02	9.65	13.31
True Free SO ₂						
at						
°C.	°F.					
0	32.0	19.30	17.35	14.38	12.71	9.97
6	42.8	15.88	14.36	11.99	10.60	8.00
10	50.0	13.45	12.13	10.07	9.00	6.79
20	68.0	10.13	9.02	7.31	6.47	4.78
30	86.0	6.82	6.00	4.67	3.94	2.97
40	104.0	4.59	4.01	3.08	2.75	1.89

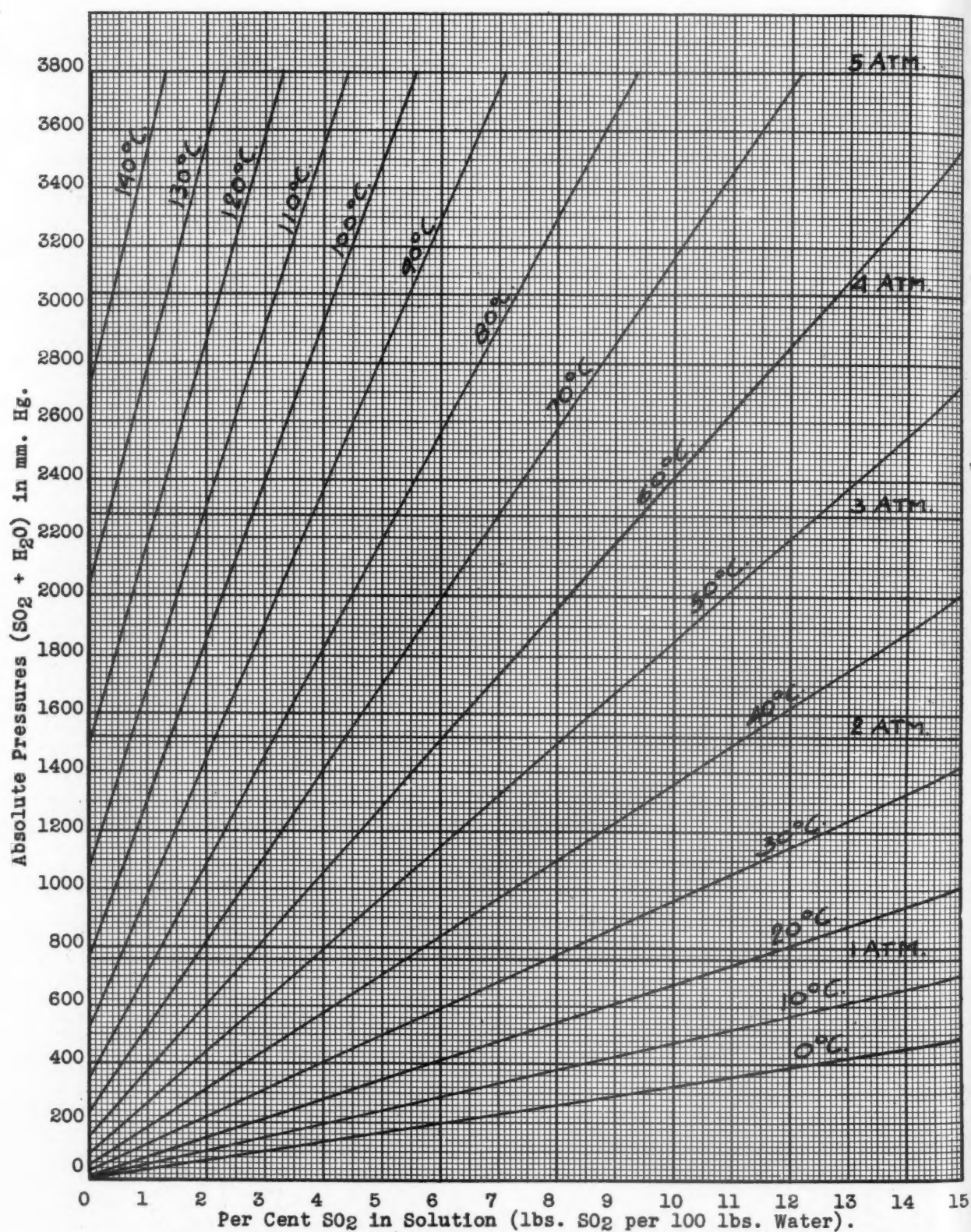


Chart IX.

Total Pressures over Aqueous Solutions of SO_2 .

TABLE XIV

0°C.	32.0°F.	1.000	20°C.	68.0°F.	2.042	40°C.	104.0°F.	4.169
1°C.	33.8°F.	1.0363	21°C.	69.8°F.	2.116	41°C.	105.8°F.	4.320
2°C.	35.6°F.	1.074	22°C.	71.6°F.	2.193	42°C.	107.6°F.	4.477
3°C.	37.4°F.	1.113	23°C.	73.4°F.	2.272	43°C.	109.4°F.	4.640
4°C.	39.2°F.	1.153	24°C.	75.2°F.	2.355	44°C.	111.2°F.	4.809
5°C.	41.0°F.	1.195	25°C.	77.0°F.	2.441	45°C.	113.0°F.	4.983
6°C.	42.8°F.	1.239	26°C.	78.8°F.	2.529	46°C.	114.8°F.	5.164
7°C.	44.6°F.	1.284	27°C.	80.6°F.	2.621	47°C.	116.6°F.	5.352
8°C.	46.4°F.	1.330	28°C.	82.4°F.	2.716	48°C.	118.4°F.	5.546
9°C.	48.2°F.	1.379	29°C.	84.2°F.	2.815	49°C.	120.2°F.	5.748
10°C.	50.0°F.	1.429	30°C.	86.0°F.	2.917	50°C.	122.0°F.	5.957
11°C.	51.8°F.	1.481	31°C.	87.8°F.	3.024	55°C.	131.0°F.	7.120
12°C.	53.6°F.	1.534	32°C.	89.6°F.	3.133	60°C.	140.0°F.	8.511
13°C.	55.4°F.	1.590	33°C.	91.4°F.	3.247	65°C.	149.0°F.	10.174
14°C.	57.2°F.	1.648	34°C.	93.2°F.	3.365	70°C.	158.0°F.	12.160
15°C.	59.0°F.	1.708	35°C.	95.0°F.	3.488	75°C.	167.0°F.	14.540
16°C.	60.8°F.	1.770	36°C.	96.8°F.	3.614	80°C.	176.0°F.	17.380
17°C.	62.6°F.	1.834	37°C.	98.6°F.	3.745	85°C.	185.0°F.	20.770
18°C.	64.4°F.	1.901	38°C.	100.4°F.	3.882	90°C.	194.0°F.	24.830
19°C.	66.2°F.	1.970	39°C.	102.2°F.	4.023			

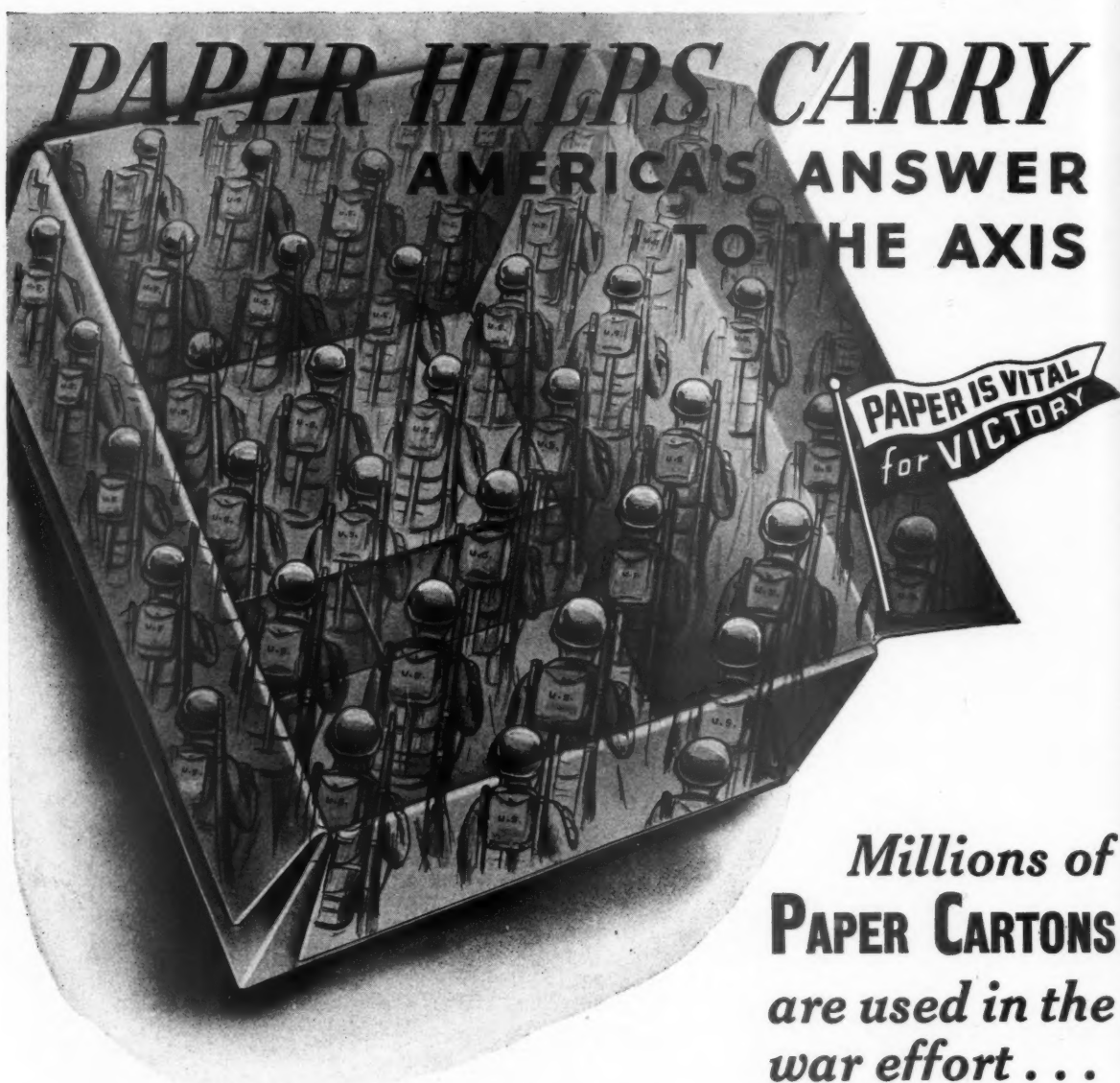
TABLE XVI

Partial Pressures of H₂O and SO₂ Over Aqueous Solutions of Sulphur Dioxide

Partial Pressures of H₂O and SO₂ in MM. HG.

[illegible]

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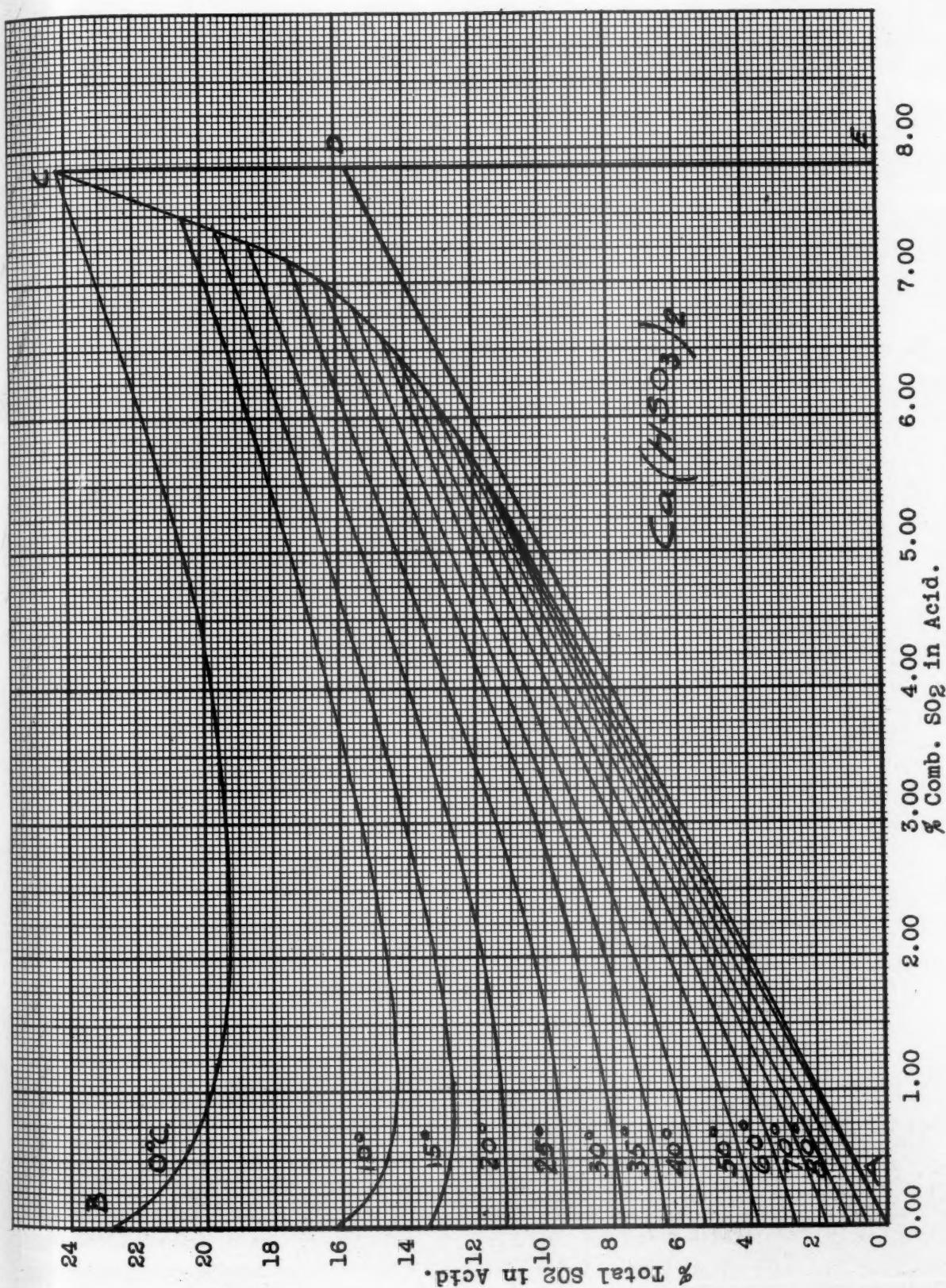


Chart X. Ca-Bisulphite Solution saturated with 100% SO₂ Gas at Atmospheric Pressure.



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TABLE XXI
SO₂—Partial Pressure 76 mm. Hg.

Combined SO ₂		%	%	%	%	%
Total SO ₂ at		0.59	1.10	2.33	3.43	5.68
°C.	°F.					
0	32.0	3.29	4.18	6.46	8.56	12.92
5	41.0	2.96	3.88	6.19	8.30	12.65
10	50.0	2.68	3.63	5.96	8.07	12.45
15	59.0	2.43	3.40	5.75	7.89	12.28
20	68.0	2.24	3.20	5.60	7.74	12.14
30	86.0	2.05	3.02	5.43	7.59	12.01
40	104.0	1.90	2.89	5.30	7.47	11.93
True Free SO ₂						
at						
°C.	°F.					
0	32.0	2.11	1.98	1.80	1.70	1.56
5	41.0	1.78	1.68	1.53	1.44	1.29
10	50.0	1.50	1.43	1.30	1.21	1.09
15	59.0	1.25	1.20	1.09	1.03	0.92
20	68.0	1.06	1.00	0.94	0.88	0.78
30	86.0	0.87	0.82	0.77	0.73	0.65
40	104.0	0.72	0.69	0.64	0.59	0.57

CORRECTIONS—

The following corrections should be made in the January and February installments of "Acid Making in the Sulphite Pulp Industry."

On page 22 of the January issue the last line under "B. Pyrites Burning," column one, should read, "and 6 volumes SO₂ are 6.00 x 100 or 16.63% by volume."

36.09

On page 28 of the February issue, the heading "Heat Input" and the next line reading, "Heat in Pyrites," in column two should be moved up in the same column and inserted ahead of the fourth line, "The gangue is assumed . . ."

In column one on page 31 of the February issue, the heading "B. Pyrites Burning a. Without Heat Exchanger," and the next twelve lines down to the subheading, "b. With Heat Exchanger," should be moved to column two on the same page and inserted ahead of "The weight of the dry gas is 919 lbs. . ."

Camas Unions Accept Medical Service Plan

● Members of the Camas, Wash., Paper-makers and Pulp and Sulphite workers locals voted recently to accept a proposed increase in cost of medical service of 50 cents per month. The service covered under this proposal includes free medical and surgical attention, medicine and hospitalization at a cost of \$2.50 per month.

The extent of medical care is similar to that in effect during the past year and the increase is due to increases in costs of hospitalization, and drugs and the excessive increase in physical examinations brought about by the high labor turnover.

The Camas medical service is available to all employees of the Crown Willamette Paper Co., Division of Crown Zellerbach Corporation at Camas.

Keith Frampton Stationed At Honolulu

● First Lieutenant Keith Frampton of the Army Air Corps is now stationed at Honolulu, according to his father Charles G. Frampton, superintendent of the Fern-

strom Paper Mills, Inc., Pomona, California. Lieutenant Frampton was with the St. Helens Pulp & Paper Company at St. Helens, Oregon, when he joined the Air Corps in January, 1942. He received his primary training at Chandler and Glendale, Arizona, his basic training at Taft, California, and advanced training at Stockton Field, Stockton, California, where he received his commission as a second lieutenant on June 26, 1942.

Assigned to learn the handling of heavy bombers, Lieutenant Frampton was transferred to Alamogordo, New Mexico. Further training took him to El Paso, Texas, Tucson, Arizona, and to Topeka, Kansas, where he received his commission as a First Lieutenant on December 29, 1942.

Early this year he flew to California with his crew in a B-24, and his father visited him early in February before he left for Honolulu.

While stationed at Tucson Lieutenant Frampton and Miss Eileen Meagher of Boise, Idaho, were married, and Mrs. Frampton was with him during the latter part of his training. She is now finishing her nurses' training course at St. Vincent's Hospital in Portland.



FIRST LIEUTENANT KEITH FRAMPTON, Army Air Corps

Developments on the "Essential Industry" Front

(Editorial)

THE article which leads off this issue, written by Colonel DeLong, head of the Selective Service System in Washington State, should go far toward clearing the air in regard to the much-discussed war essentiality of the pulp and paper industry.

For the purpose of reassuring employees of the mills who may still have some lingering doubts on this score, it might be a good idea to post the cover page of this magazine, with the Colonel's picture and the punch lines of his statement, on a bulletin board at your mill.

This statement, coupled with the one which was issued in August by General H. G. Winsor, then War Manpower director for Washington and Oregon, certainly should stabilize the situation as far as it is possible in the Pacific Northwest. We refer to the Winsor pronouncement, signed also by the selective service and employment service chiefs Washington and Oregon, which said, in part:

"The pulp and paper industry is doing work essential to the war effort. The workers in this industry will be considered for occupational deferments in the same manner as employees in any other essential activity. It is the patriotic duty of all workers in this industry to remain on their present pulp and paper mill jobs until further notice."

The fact that this industry was placed in a "job-freezing" category with logging, lumbering and the non-ferrous metals industry and later removed from that category was an entirely independent matter. No responsible government official has claimed that the "freeze order" had any connection with General Winsor's proclamation of last September.

East Not Faring Well

● While the situation is fairly well stabilized in the Pacific Northwest, the pulp and paper industry in the rest of the country is not faring so well. Within recent months there have been confusing and contradictory pronouncements from WMC and WPB officials in Washington, D. C.

From Washington came a directive to all draft boards in the country in November which listed parts of the pulp and paper industry as essential. In February this directive

was sent to the U. S. Employment Services to serve as a guide in the allocating of manpower. This was that now well known list of 35 "essential industries" prepared by the WMC in Washington. It is now the guide for all agencies allocating manpower and that is important to the man in the pulp and paper mill. For, added to the question of his liability under the draft, a new question had arisen—was he liable to be transferred to another industry?

The directive on essential industries listed, among others:

"Production of materials for packing and shipping products: . . . excelsior, pulp and paper, paper bags, paperboard containers and boxes . . ."

The hitch in all this is that draft boards and employment service offices have considerable freedom in their interpretation of all such directives. Unfortunately for the industry in eastern United States, the interpretations have been narrow.

E. W. Tinker, president of the American Paper and Pulp Association, made a particularly cogent observation when he remarked that there wasn't much use of calling certain paper and paperboard essential if the pulp from which it was made was not also proclaimed as essential. The directive seems to clearly include such pulp but apparently the manpower officials in the east have not seen it that way at all times.

West Coast Better Off

● In the West, happily, the directive has usually been interpreted quite liberally as it should be. Most manpower agencies in the Pacific Northwest are cognizant of more vital work being done by these mills than indicated in that brief reference to pulp and paper. They regard the mills that are nitrating pulp, for example, as coming under another essential industry category—"production of munitions." It also is fortunate for the Pacific Northwest that the vital importance of rayon pulp is recognized.

On the bright side of the ledger is the action of the secretary of a local draft board in a sizable mill town in Washington state. This official wrote a letter over his signature which was posted on the bulletin board of the mill. It said, in part:

"THE PRODUCTION OF PULP AND PAPER (IS) DEFI-

NITELY LISTED AS AN ESSENTIAL ACTIVITY AND HAS BEEN FOR SOME TIME."

His willingness to send such a letter to the mill over his name, for the employees to read, was a contribution to stabilization of the industry in that town.

L. C. Stoll, War Manpower Commission area director for Oregon, also helped this cause along by a letter he sent to all the pulp and paper mills in his state, assuring them that they were **not** considered as non-essential. It might have been hoped, however, that Mr. Stoll could have expressed his thoughts positively, rather than in the negative form.

Still In No-Man's Land

● There are some parts of the pulp and paper industry that still seem to be in a sort of no-man's land, neither in one category or another, especially in eastern United States. One of these divisions is newsprint production. It is in such divisions that the declarations by General Winsor, Colonel DeLong and Mr. Stoll have been helpful.

No one expects blanket deferment for the pulp and paper industry. One draft board official, however, told a representative of this magazine, that a man who has spent five years in a pulp or paper mill is going to be considered more "essential" than a man who got panicky and left the mill and had only five weeks or five days in a shipyard. The statements of manpower agency directors in the Pacific Northwest indicate that a man in a pulp or paper mill is just as "safe"—if that word might be used advisedly—as a man in a shipyard.

Under the General McSherry-approved joint labor management plan of relieving the labor crisis in the Pacific Northwest, the pulp and paper mills of Washington and Oregon have made themselves a good reputation for good citizenship. Most fair-minded public officials who have been watching how this plan worked out, are willing to give the mills credit for being patriotic, unselfish and really helpful to the war effort.

Four-Point Plan

There are four points under the plan, as follows:

1. Increasing hours per worker per week. Practically all the mills

in Washington and Oregon have increased the work week to 48 hours and had done so long before the government's recent 48-hour week order.

2. Converting men's jobs to women's. About 700 women have taken over men's jobs since Pearl Harbor in the two states. These are in addition to hundreds of women already employed in the mills. The wartime additions of women totaled 596 in 28 of 31 mills as of last February 1.

3. Increasing direct war work in the machine shops.

Machine shops in 29 mills of the two states put in a total of 461,361 hours on war work, between May 1 and December 31. The aggregate value of this work was about \$2,300,000 and was mostly done without profit. A great majority of it was making and finishing materials for warships and cargo ships.

The accompanying table shows how this work has steadily increased.

4. Transfer of employees not using their highest skills to war work where they may do so. This is the only part of the four point program which has not progressed as rapidly as was hoped. Under this provision, a study of skills was made to give each operator a knowledge of the chief skills of all of his men employees, to give him an opportunity to place his men at their highest skills in the mill or to release them to direct war industries where they could use such skills. The release provision has not worked out well because of housing shortages in the vicinity of shipyards and other war plants and because many pulp mill workers have their own home 50 to 75 miles from those war plants.

On the whole, however, the plan may be termed a success now, a half year after its inception.

The industry must still be on guard against elements in officialdom who have little understanding or sympathy for the vital war work being done by the mills. But one well known representative of the Pacific Coast pulp industry had this optimistic remark to pass on after his most recent trip back to Washington:

"The popular theme today in Washington is not to find new ways to restrict pulp and paper but to get as much production as possible out of what is left of the industry in material and labor."

Mill Machine Shop Work

Month	Hours		Total Hours
	On Prime Tools	On Floor Work (assemblies, etc.)	
June, 1942	32,257	13,430	45,687
July	31,165	13,478	44,643
August	35,480	24,021	59,501
September	37,687	29,540	67,227
October	41,381	32,935	74,316
November	37,815	33,778	71,593
December	36,689	36,815	73,504

Further Newsprint Curtailment Indefinitely Postponed by WPB

● Further curtailment of newsprint use has been indefinitely postponed and assurances have been issued by the War Production Board in Washington, D. C., that there be no further cuts "at least" until after July 1.

The Canadians had advised the WPB that an unexpected amount of wood had been cut during the winter in Canada, easing the situation.

Therefore, plans for a second ten per cent cut in newsprint use, scheduled for April 1, were cancelled. In fact, the entire restriction program, as it had been unofficially outlined to representatives of the pulp industry in Washington, was halted. A third ten per cent cut was in the cards for mid-year, according to well informed sources.

The Canadian authorities confirmed their undertaking to furnish for shipment to the U. S. 1,170,000 tons of wood

pulp plus an additional 107,000 tons which the Canadian government will call upon its pulp and paper industry to supply within the next few months. This woodpulp, it was said, is in addition to newsprint shipments from Canada.

The need of an additional supply of pulp wood, over and above the amount previously assured by the Canadian authorities, was imperative for the manufacture of other grades of paper in the U. S. unless further cuts in use were to be applied to users of print paper other than newspapers, WPB said.

According to WPB authorities, A. H. Williamson, Canadian timber controller, has given assurance that authorizations for the shipment to individual mills in the U. S. of 1,550,000 cords of pulp wood will be made to destinations at the direction of WPB.

Government Printing Helps

The paper shortage and restrictions already in effect will reduce by millions of dollars the business of commercial printers this year. Some of the printing industry's biggest customers have discontinued brochures and direct mail advertising and others have reduced this type of publication drastically.

Allowed to use but 90% as much paper as last year, many mass-circulation magazines have chopped their print orders by hundreds of thousands of copies.

Just about the only offset in sight for the industry as a whole is the Government's insatiable appetite for printed matter, ration books, military manuals, forms and questionnaires.

The Government runs its own \$25 million capacity printing plant, the Government Printing Office. But it is swamped and farming out work to private printers; this windfall will amount to \$35 million or more this year.

Papermakers Attend St. Louis Meeting

Odmund Egaas, secretary of Camas, Wash., local 130 of the International Brotherhood of Papermakers, will attend the national convention of the organization beginning March 8 in St. Louis.

Bart Tidland and Art Hannaford from Camas will also attend the convention as Pacific Coast representatives of the Brotherhood.

Vic Hughes Heads Drive

● Victor Hughes, Secretary of the Pacific Coast Paper Mills has again headed the Industrial Section of the Red Cross Membership drive in Bellingham, Wash. This is the fourth successive year that he has held this assignment.



No Improvement Shown In British Columbia Log Situation

Early resumption of hemlock exports to Puget Sound pulp mills held unlikely. Suggestion made that if Washington state log situation improves first, its logs will be exported to Canadian province..

● The log shortage continues critical in British Columbia and early in March Assistant Timber Controller D. D. Rosenberry, after a survey of conditions in the west coast woods, described the situation as worse than it has ever been.

The prospect of early resumption of exporting hemlock pulp logs to the United States is therefore dark for the coming few weeks, and it seems unlikely that the movement indicated by Timber Controller A. H. Williamson when he was on the coast recently will not begin to show in volume until well into April or May.

Meanwhile British Columbia sawmills and pulp and paper mills have been feeling the pinch as never before. Several sawmills have shut down, and Powell River Company production was down about 50 per cent in the months of February and March. The mill is currently being operated on the basis of one week total shutdown per month, with the balance of the month on a five-day week schedule.

The sharp curtailment began in January when a freeze-up and heavy snowfall prevented the return of logging camps to operation after the usual midwinter shutdown. Ordinarily a company like Powell River has a five months' supply of logs on hand during the winter, but during the past few months the supply of logs has been virtually on a hand-to-mouth basis.

Logs Once Went North

A prominent British Columbia mill operator remarked with a smile that since Canada and the United States were to share raw materials in wartime, Washington state logging camps might be prepared to ship some vitally needed hemlock logs to British Columbia, thus reversing the situation forecast by Mr. Williamson a few weeks ago.

A few years ago, it will be recalled, pulp logs used to be shipped occasionally from the state of Washington to British Columbia mills, but recently the flow has always been from north to south, except when nothing moved either way. The embargo was established last year—an embargo which theoretically was removed early this year following ne-

gotiations in Washington.

British Columbia pulp and paper operators do not agree with the argument of an American congressman that Crown grant logs originating on the west coast of Vancouver

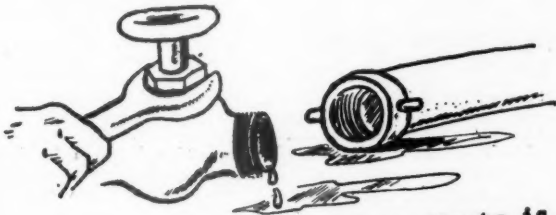
Island should be shipped to American mills at, say, Everett because that would involve a shorter haul. They maintain that the margin of distance involved is insignificant, and that to ship all west coast logs to the United States would result in depriving British Columbia Pulp & Paper Company's Port Alice mill of its stocks.

A Boy For Jack Robertsons

The surprise addition of a boy, John Arthur, to the family of Jack F. Robertson, safety supervisor of the Crown-Zellerbach mill at Camas, Wash., and Mrs. Robertson, was an occasion for celebration in late January.

FIELD NOTES

CHECK LEAKY VALVES



Common practice in industrial plants is to keep hot water and steam hose attached to valves at all times. If valves leak, even slightly, constant heat is entering the hose. This speeds deterioration of the tube.

Periodic checking of valves is recommended to detect slight leakage. At night and during long shutdowns, hose should be detached from the valves.

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Lieutenant Svoboda Wins Fourth War Decoration

● First Lt. Milton J. Svoboda, navigator-bombardier in the United States Army Air Corps and former employee of the Crown Zellerbach mill at Camas, Wash., has been decorated for the fourth time for his outstanding work in the service.

His awards have been for "accurate shooting and courage in the face of enemy fire," for gallantry in action, and for completion of 100 and 200 hours of operational flight against the enemy. He has won him the Silver Star, the Oak Leaf Cluster, the Distinguished Flying Cross and the Air Medal. His service has extended over 14 months.

Hoquiam Man Sees Action

Pvt. John Novak, former employe of the Hoquiam, Wash., division of Rayonier Incorporated, saw action in two battles in the Casablanca area when the American troops were landing in North Africa, according to word received by his relatives. Young Novak experienced a couple of close calls but came through uninjured and presumably is still on active duty in the North African theater of war.

Bell-Irving Heads Vancouver Social Agencies

● R. Bell-Irving, vice-president of Powell River Company, was re-elected president of the Vancouver Council of Social Agencies at the annual meeting in Vancouver recently.

Wasell, Chief Engineer, Dies Suddenly at Vernon

● S. I. Wasell, chief engineer, Fibreboard Products Inc., Vernon Division, Los Angeles, died suddenly February 10. For the "Fibreboard Bulletin," house organ of the Vernon plant, Bruce F. Brown, Southern Division manager, wrote the following biography of Mr. Wasell.

"The many friends and fellow employees of our chief engineer, Mr. S. I. Wasell, were shocked to learn of his sudden passing on the evening of February 10. He had been attending to his regular duties in the power plant during the day and shortly after returning to his home, became suddenly ill and passed away while being rushed to the hospital.

"He was an exceptionally gifted, self-made engineer, very proficient in the operation of hydraulic, steam and electrical equipment. He had served in the United States Navy and was a student of the International Correspondence School. He had an extensive library and a well-equipped laboratory and kept fully abreast of the latest engineering and chemical developments. His hobby was music; he was a capable musician and for a time was the leader of an orchestra made up of his fellow employees.

His employment at this plant began nearly thirty years ago, on April 6, 1913. The plant was then in its construction stage and he worked for a time in the machine shop and assisted with the installation of various machines and particularly with the power plant equipment. At that time the power plant consisted almost entirely of steam units, the only exception being a 50-kilowatt generator for lighting and for a few small remotely located motors. He had seen all of these parts replaced by larger and more efficient units as necessity called for changes throughout the years.

"When the plant was ready for production in May, 1913, 'Izzy' (as he was familiarly known) was made day engineer with supervision over the night engineer and the firemen. In those days it was two shifts of twelve hours, six days per week and repair work on Sundays. Some time later the change was made to three eight hour tours, and Mr. Wasell was promoted to the position of chief engineer, which position he has held continuously up to the time of his death.

"It is no small job to keep pumping machinery, boilers, turbines, generators and accessories in full operation for twenty-four hours per day and seven days a week with only the briefest pauses for repairs and yet that was the task 'Izzy' was called upon to perform, and which he so capably met throughout the years.

"To his family we extend our deep sympathy."

Howell Joins Seabees

● Raymond Howell, assistant foreman of the finishing room at the Crown Zellerbach mill in West Linn, Ore., has joined the Seabees, U. S. Navy construction battalion, as a carpenter. He reported to the Seabees camp in Virginia in January.

Roger Egan Visits Mills

● Roger Egan of New York, eastern representative of the Soundview Pulp Company and the Puget Sound Pulp & Timber Company, visited the mills during February.

Ben Natwick On the Coast

● Ben Natwick of the Appleton Wire Works, Appleton, Wisconsin, called on Pacific Northwest mills late in February and stopped in at Camas to kid his father, A. G. "Buff" Natwick, assistant resident manager, about his growing reputation as a fisherman.

His greeting to his father was, "Huy huy lum kopas tenas pish," Chinook jargon for, "Trade firewater for little fish." This line came from the poem written by Jack Savage, sulphite superintendent of the Crown Zellerbach mill at Camas, which appeared on page 16 of the January issue.


The Appleton Wire Works, Ben Natwick said, is busy not only making wires for the industry, but also with a large amount of machine work on war equipment.

Southern California Meeting

● The Southern California Paper Makers and Associates plan their next meeting in Los Angeles on April 15. Further details may be obtained from C. G. Frampton, superintendent, Fernstrom Paper Mills, Inc., Pomona, Calif.

College Professors Visit C.-Z. Technical Laboratory


Dr. Bert E. Christensen, professor of organic chemistry at Oregon State College and Dr. O. H. Schrader of the college of forestry, University of Washington, were visitors at the Central Technical Laboratory of the Crown Zellerbach Corporation at Camas, Wash., during the past month.



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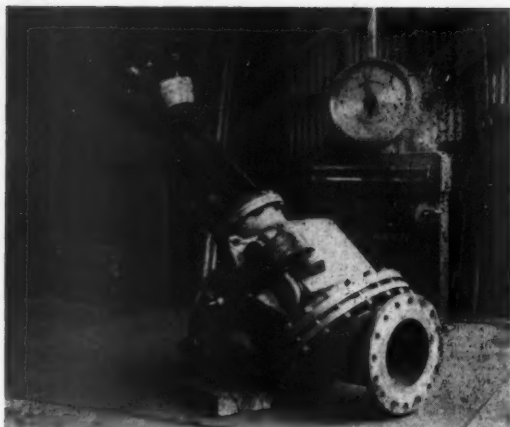
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